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MODERN VIEWS ON SURGICAL DRESSINGS*

I. BY R. A. S. WILSON, M.R.C.V.S.,
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The subject which I wish to discuss to-night is the uses of plaster as a surgical dressing.

Knowledge of the surgical application of plaster and the principles that I shall describe are the result of experience over a period of five years.

Those surgeons who have come to use plaster as a surgical dressing have propounded varying views in explanation of its success in aiding healing. Some attribute all its benefits to the absolute immobility imposed by the plaster cast. Others say that the discharges that bathe the wound or injury have bactericidal properties, whilst it is known that the immobilisation has a striking effect on the flow of lymph; in fact, the flow of lymph may be arrested completely in a plaster cast and consequently retards the spread of infection.

Experience gained in war has always been a factor in surgical progress and it was during the late Spanish war that the use of plaster as a surgical dressing came into existence. Trueta found that when he encased a wound in plaster certain changes took place. These changes may be summarised as follows:—

1. The wound is immobilised.

2. Rest allows local venous and capillary thrombi to form. These prevent and delay the spread of infection and are not broken down by repeated handling.

3. Covering of the wound allows new capillaries to form which are not torn or destroyed by repeated dressing.

4. The plaster cast maintains a constant pressure on the wound which prevents oedema and retards the flow of lymph and spread of infection.

This applies to most of the soft tissues. At the same time fractures can also be treated in this way. I should like to say here that the country practitioner has to rely entirely on the plaster as a means of treating fractures, despite the fact that other more effective measures, such as plating and pinning, recently have been introduced. Unfortunately, the latter process is impracticable from the point of view of the client owing to the extra expense involved.

Treatment of the patient depends upon the animal and surrounding conditions.

In small-animal surgery I have found plaster application to be most effective.

A large percentage of wounds relating to domestic animals are found in the limbs and therefore a plaster cast can be applied satisfactorily. A suitable anaesthetic, *e.g.*, nembutal or pentothal sodium, is selected. The wound is thoroughly cleansed and shaved. A small portion of the edge of the wound is excised (scalpel or sharp scissors), all the contused tissue, muscular and otherwise, is removed. The wound is then dressed with sulphanilamide or penicillin and stitched. It is then covered by plaster (gypsona, 6 inches by 3 yards). This plaster is left on for about seven days, after which time the wound will have healed by first intention.

SMALL ANIMALS. When applying plaster to injuries of the digits in small animals it is very important to see that the application is made correctly. Special care must be taken to ensure that the affected limb is in a natural position. In the case of compound fractures an opening must not be left in the plaster. This would allow infection from the exterior.

Other conditions in the small animals which can benefit from this line of treatment are haematoma of the ear and arthritic conditions and sprains of the digits of the racing dog.

LARGE ANIMALS. In the large animals I have found the surgical application of plaster invaluable owing to the complications which may arise as a result of contamination.

The Horse.—Local anaesthesia can be resorted to for excision and stitching of the wound, but if extensive, a general anaesthetic should be given. Cocaine, being a protoplasmic poison, should be used with discretion as it may retard healing of the wound. I should like to quote two cases in the horse which are examples illustrating how satisfactory this treatment can be.

(*a*) Seven-year-old shire mare. She had been caught in barbed wire. Examination revealed the anterior portion of the left hock to be torn completely and three or four of the tarsal bones exposed. The animal was sweating profusely and was unable to walk except with extreme difficulty.

Before examination the farmer told me that he thought it was a hopeless case and was surprised afterwards to learn that her chances of recovery were, in my opinion, fairly good.

The affected part being badly bruised and contused, there was very little sensation, so I proceeded to clean up the wound without using anaesthetic. Having thoroughly cleansed the wound, I dressed it with sulphanilamide powder and then applied the plaster (nine gypsona bandages—size six inches by three yards—used).

The following day the farmer 'phoned to say the mare was much easier, the sweating had subsided and she was feeding, although unable to put her affected limb to the ground. I removed the plaster after five days and it was obvious that considerable granulation had taken place. After dressing the wound with sulphanilamide powder I plastered again and left it on for a further ten days. The same procedure was repeated, the plaster being left on for three weeks after which time healing had taken place so well that the affected area was now only the size of a half-crown. No more plaster was applied, only daily dressings with sulphanilamide powder, and the mare resumed work in about seven weeks' time from when the injury took place.

(*b*) Four-year-old Percheron type mare. She was kicked on the lateral surface of the left hock by another horse. The skin and tissues were badly damaged and the tarsal

* Discussion by the Central Veterinary Society, Thursday, October 5th, 1950.

bones were exposed. This animal was treated in the same way as the first, the wound healing completely in about six weeks.

These two cases exemplify the efficacy of the surgical application of plaster in the treatment of wounds of gross severity—a procedure which, in my opinion, is very much superior to the open method.

Before I leave the horse there is another condition I should like to mention which can successfully be treated with plaster, namely, sprained tendons.

Until quite recently when inductothermy came into existence the usual method of treatment was by counter-irritation, such as blistering or firing. The action in both these cases was the same, to set up a local inflammatory process followed by a thickening of the skin which acted as a support. It was on these lines that I based my theory of the relative action of plaster application to give the same support, which produced very satisfactory results.

Treatment.—Knee to fetlock; hock to fetlock according to limb.

The plaster should be moulded into the position of the limb and you must see that there is reasonable pressure over the affected tissues. In the heavy type horse the hair should be clipped off as close as possible. The plaster is left on for a period of about three weeks. The advantages arising from this method of treatment are that the animal can be turned out to grass immediately and there is no anxiety regarding precautionary treatment.

Cattle.—In cattle conditions similar to those in the horse can be treated by plaster application; others are as follows:—

Following removal of large warty growths between the claws of cattle, plaster is applied and left on for 14 days after which time the wound has healed completely.

Broken horns can also be protected by a plaster cast. This has an advantage over an ordinary bandage because it sets hard and if the animal happens to strike her head against a wall or solid object, no pain is caused.

To revert to fractures, certain of these can also be treated in cattle, namely, those distal to the elbow and stifle. Recently I treated a four-year-old Ayrshire cow which had a fracture of the proximal extremity of the left tibia. The animal was found in the cowshed lying down in considerable pain, sweating profusely, and it was obvious that some gross injury had taken place. Examination revealed the aforementioned fracture. I encased this limb in plaster from the foot upwards a few inches above the stifle. I left this on for seven days during which time a somewhat large callus had formed. I again plastered the limb and left this on for a period of about three weeks. On removal of the plaster the bone had healed completely, the large callus was considerably reduced in size and the animal was able to walk quite freely; with the exception of a slight limp it has made an uneventful recovery.

In conclusion, I hope that my observations have been of some interest to you, and I shall be pleased to hear from any member who has had experience of this particular line of treatment.

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II. By P. L. BUILDER, M.R.C.V.S.,

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Surgical dressings now have a value greatly enhanced by the availability of the various antibiotics and the newer bacteriostatics. The most important wound dressing today is undoubtedly penicillin parenterally introduced, making possible types of surgical interference not previously practicable in veterinary practice. Intramedullary pinning, for example, has now become a comparatively simple procedure with an excellent prognosis, and has made repair of certain types of fracture possible where hitherto euthanasia would have been advised.

However, in view of the fact that there are a number of opening speakers on this same subject, to avoid repetition I intend confining my remarks mainly to the use of one particular surgical dressing, namely, Uro-Sulphonet tulle (Dalmas), which I find has a considerable and useful field of application in small-animal practice.

This dressing consists of a wide mesh tulle impregnated with urethane 2 per cent. and sulphathiazole 5 per cent. in a wool alcohol emulsion base.

Pharmacology

Sulphonamides, in common with all chemical agents having a bacteriostatic action, are inhibited in their action in the presence of protein—serum, pus, etc., in the case of topical application to wounds—due to the adsorption of the agent on to the protein. This disadvantage is not shared by the antibiotics, whose minimum bacteriostatic concentration is the same *in vivo* as it is *in vitro*. It may be of interest to mention that in the Rideal-Walker test, yeast is added to the material under test to supply protein and thus simulate *in vivo* conditions. However, the action of the sulphathiazole fraction in the tulle is enhanced by the oxidation of urethane into urea and by the destructive action of the urea on para-amino benzoic acid, this latter being, of course, a normal serum constituent.

Urea is one of the few agents which can be employed successfully as a bacteriostatic against Gram-negative organisms, and has the added advantage of combating the sulphonamide-inhibiting factor in wounds. Weinstein (*B.M.J.*, 14.2.48) states that urethane is more active than urea in these respects.

Streptomycin is active against Gram-negative organisms, but is not readily available in a form convenient for topical application. Furthermore, organisms rapidly become resistant to this drug, and owing to its high toxicity it seems unlikely that there is a future for it in this respect. Para-amino salicylic acid delays the development of resistance to streptomycin, and a place may be found for the combination of the two agents. Neomycin, a new antibiotic having an action similar to that of streptomycin without the disadvantages of the latter, holds out considerable promise.

A further advantage of urea is that it exerts an analgesic effect in the wound, serving to reduce the attention paid to the wound by the patient. It also tends to remove much of the offensive odour.

From a mechanical point of view, a wide mesh tulle prevents the dispersal of the agents by allowing adequate serum drainage into the overlying dressings. If, for instance, a sulphonamide powder only is used, little time elapses before the agent is washed out into the dressing and its action lost; the tulle holds the sulphathiazole in contact with the damaged tissue indefinitely, and the zone of inhibition extends out between the mesh.

The base—wool alcohol emulsion—acts as an efficient anti-adherent factor, thus reducing pain when dressings are removed.

Uses of Tulle

Generally speaking, tulle can be employed successfully in any open wound which cannot be surgically repaired, and as a dressing over any repaired wound.

Wounds following Surgical Interference.—Personally, I abhor the use of dressings of any kind over operation wounds. It is my opinion that bandaging a laparotomy incision retards rather than assists healing in small animals, and with the exception of aural resection I do not employ any covering other than a small gauze pad.

My dressing of a surgical wound comprises light insufflation with a sterile powder composed of sulphathiazole with the addition of 5,000 I.U. penicillin per gram prior to the insertion of each suture line. A light gauze pad is then anchored along the skin suture line, using a few interrupted sutures placed about 1 inch apart. This pad is removed about three days following the interference, and it serves to protect the wound against gross contamination during this early healing period, and also to prevent the patient from indulging in too much self-mutilation—the sutures used to anchor the pad undoubtedly cause pain when an effort is made by the patient to lick, and this acts as a deterrent in most cases.

The orthodox aural resection I consider requires special treatment for three reasons:—

1. This being a plastic operation, effort must be made to prevent the tissues from regaining their former structure—by this I mean, of course, prevention of the marked tendency shown for healing to take place upward from the point of the V, and also the maintenance of a patent canal and one of maximum size.

2. Generally it is not possible to achieve anything approaching asepsis within the canal prior to operation; there may be a polypus present occluding the canal, and in any event, regardless of effort, debris is usually found, despite thorough cleaning, when the canal is opened; this means that the operation is carried out under septic conditions, and in any event I usually find some degree of sepsis after a few days—possibly the cartilage present is a further factor influencing this.

3. The ear is a structure particularly susceptible to mutilation by the patient.

A satisfactory method of dressing these cases is to pack the canal tightly with a strip of tulle about 1 inch wide, and then to lay further strips of double thickness over each arm of the V. Wool is then packed into the V over the tulle to hold it open as far as possible. Large pads of wool are then placed both under and over the flap, and the ear bandaged back across the head. The whole is finally held in position by a single layer of Elastoplast bandage.

This makes a comfortable dressing for the animal, and the tulle allows drainage into the wool, so that a reasonably dry ear may be expected when the dressing is removed on the third day. A second dressing, consisting only of a light bandage or calico cap, is then applied.

Accidental Wounds.—Tulle is particularly suitable in the dressing of wounds which are not suitable for surgical repair.

A wound such as is occasioned by a severe bite and which is suppurating when first seen may be treated by cleansing first with a 1 per cent. solution of cetavlon, lightly insufflated with a sulphathiazole/penicillin powder, and then tightly packed with tulle strips before bandaging.

Cetavlon is mentioned for the initial cleansing, as it is stated to have the considerable advantage of persistence in action as compared with other antiseptics, by virtue of its power of combination with living protoplasm and its lack of irritant properties.

The tulle is at all times simple to remove provided that more than one layer is used—a single layer may dry after a short while and adhere.

When dealing with any wound of the lower part of a limb it is essential to include the foot in the bandage; small pledgets of cotton-wool placed between the toes do much to increase the comfort of the dressing and to prevent the excoriation which otherwise results. I feel that three days is the maximum time for which a bandage should be left without redressing, particularly if an adhesive covering is employed to prevent removal by the patient, otherwise considerable excoriation results.

Tooth Extraction.—Tulle makes an excellent plugging material for tooth sockets after extractions, especially where difficulty is experienced in controlling haemorrhage. My procedure is to insert a penicillin dental cone—1,000 I.U. penicillin with ½ grain sulphathiazole and ½ grain sulphanilamide—and then to pack in a thin strip of tulle. This must be removed after 24 hours.

Finally, I would like to say a few words on the subject of kaolin poultice. This old standby still has a very real place in wound treatment. For the really contaminated injury such as the limb skinning which results from some street accidents, I find that considerable benefit and relief is obtained from its application, and come what may in the way of newer and better antibiotics, kaolin poultice will always have a place on my shelves.

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III. By RUTH M. M. McLELLAND,

Putney, S.W.15

It is difficult for me to speak at length on the above subject, as at the R.S.P.C.A. hospital at Putney surgical dressings are usually conspicuous by their absence!

Most of our patients requiring surgical treatment are hospitalised for a few days following operation and the majority seem more comfortable when unencumbered by bandages.

A sterile wound healing by first intention is not likely to irritate the patient, and nowadays, however small the veterinary establishment and however limited the equipment, it is possible to carry out aseptic surgery.

Post-operative dressings and bandaging will never compensate for neglect of pre-operative preparation of the site and indifferent suturing—*e.g.*, the use of bandages following abdominal surgery will not counterbalance incorrect suturing of the muscle layers. When I was an interne at the Angell Memorial Hospital in Boston, where every new method was tried out, I found that their preference was still to suture each layer of the abdominal wall separately and apply no post-operative dressing.

There are certain operations we perform regularly, where complete asepsis is impossible, with the result that healing is more protracted and dressings must be applied. I refer particularly to aural resection, which is usually undertaken when the ear is in a very infected state. Following extirpation of the eyeball it is wise to plug the socket for 48 hours and I find that the use of intramammary penicillin keeps the plug moist and makes its removal easy.

Haematoma in the dog's ear also requires the application of a firm bandage following surgical treatment, but in the cat, by using Zepp's method of silver wire suturing, the ear will stand erect and heal well without any dressing.

The use of collars, made from cardboard or linoleum, is often most useful in preventing animals from interfering with wounds.

The treatment of lacerated wounds which have become contaminated before the animal is presented for treatment can be a problem. Often instead of immediately trying to

clean up such a wound it is advisable to cleanse well with cetavlon 1/1,000 and leave the wound with an antiseptic dressing applied for 48 hours. When the dressing is removed much of the debris will come away and after further cleansing and suturing the wound should heal well by first intention. This method is certainly worth a trial.

To sum up, I have been trying to convey to you that my views on surgical dressings are:—Practise aseptic surgery, use a minimum of dressings, and leave contaminated wounds for 48 hours with an antiseptic dressing before suturing.

Discussion

Mr. Douglas: Mr. Wilson had spoken of the use of plaster in small animals and described the use of penicillin, the débridement of the wound and the covering with plaster. His own experience was that he got just as good results, thanks to penicillin, without the use of plaster and obtained first intention healing in the majority of wounds, provided the damaged tissue was removed adequately. He did agree that when there was a compound fracture the immobilisation of the limb in some form or another did help towards the general healing. In this type of injury in dogs following street accidents with gross laceration he had seen surprising results with natural healing, provided the joint was immobilised; he used a light metal splint on the undamaged side of the wound strapped above and below the wound with plaster, leaving a window, and in a few weeks that wound would heal up. He believed the most important factor was immobilisation. The subject of haematoma had been raised by most of the speakers and he had seen most successful results in cats following the use of plaster after an incision of the ear, but it did not seem necessary in the dog. He could not help feeling that in dogs like Spaniels the weight of the plaster would worry the dog and cause it to interfere with it. He had no experience of tube, mentioned by Mr. Builder, but in a few cases where it was necessary to have a temporary bandage it might be very useful. He agreed that in surgical cases bandaging did tend to prevent healing and provided sterile surgery had been carried out, it should be possible to expect first intention healing without any interference from the animal and without the application of dressings. He thought the use of nylon was a help; in the old days silk certainly did cause a certain amount of irritation and the animal was inclined to lick, but the nylon caused less irritation of the sutures and the sharp ends tended to discourage the licking. As regards cleansing of wounds, the use of cetavlon was quite useful, but over the skin and tissue generally he thought a mild soap and water washing was probably the best; it certainly could not be done without. In the Beaumont before the war when silk skin sutures were used and they kept the dogs in, he found that a large percentage of the wounds healed by secondary intention and it took several weeks. When the war came and they sent the dogs home it seemed to produce better results as the dog was not long enough in the kennels to sit down and scratch itself. Then nylon came and they tried its use in aural resection, particularly in dogs with both ears affected, using silk with one and nylon with the other: there was no doubt as to the advantage of nylon. They used nylon successfully and sent the dog home next day and in the majority of cases it was not necessary to bandage. In Spaniels where the ears were inclined to drop they strapped them back across the head and they seldom found that they got interference with such wounds.

Mrs. Robertson, describing a method for the rapid removal of plaster casts, said that a small tube, large enough to admit a wire saw, was put in to the full extent of the plaster and when it had to be taken off the saw was inserted in the tube. In fracture cases, where the plaster was needed as high as possible, she described the incorporation of a wide gauge bandage into the top of the cast so that it could be carried over the body and tied round the opposite leg. She did not think it was always advisable to put the plaster on in a standing position: in cases under general anaesthesia it could not be done. She believed in always leaving the feet out.

Miss Joshua: There was apparently a difference of opinion; Mr. Wilson preferred plaster for the immobilisation of fractures and Mr. Builder indicated pinning and plating in many cases and they would like to hear more about their reasons.

Mr Wilson suggested that plating might prove too costly for practical purposes unless later the plate was removed and re-used.

Mr. Douglas: That did not apply to pinning, which cost a few pence only for the pin.

Mr. Builder: He had carried out plating with Miss Joshua and all they had were pre-1914 steel plates; they ground the plates to a suitable size and used a wire brush to get the rust off. For pinning he used S 80 stainless steel plain rod and the average cost was 2d. or 3d. a pin. One could economise by making one's own tools at a cost of about 10s., including a small framed hacksaw. It was straightforward technique and could be carried out without special facilities. Since he had been engaged in pinning he had carried out 34 pinnings and only one failed to make a good recovery. Many surgeons had the idea that they required facilities they did not possess and that the technique was too cumbersome for the general practice, but it could be carried out by simple technique and regardless of expense except for the material used, and the results were infinitely superior to those by plaster cast when one considered the type of fracture, particularly the high fracture. One feature which greatly facilitated the pinning of a femur was the use of a pin pointed at both ends, one point to give a locking and the other a narrow angle. It was introduced at the point of fracture. For example, in fracture of the mid-shaft of the femur it was inserted at the lower end of the upper fragment and carried through to act as a boring tool so as to avoid any incision over the trochanteric fossa. It was then pushed downwards through the lower fragment. A radiograph examination was bound to add to the expense of the operation and in the vast majority of cases could be dispensed with. In dealing with a fracture where they could not assess the length of the pin accurately, the technique was to insert the pin to the full extent, withdraw, saw it off, file it smooth and then hammer it home. It was undesirable to have the pin left out through the skin. In one case of an Alsatian puppy the pin was inserted and when it was time to remove it the head of the pin could not be found: examination showed that the dog had grown and the pin was well buried and had to remain.

Mr. Dixon: Mr. Wilson has suggested that the object of the plaster treatment was to reduce the lymph flow; one of the first principles of wound treatment was to give the tissue the greatest circulation and surely lymph flow was part of the circulation. He felt that its reduction might be a disadvantage rather than an advantage of plaster treatment. He liked the plaster treatment of wounds and had had many useful results with pattern plaster roughly about 24 inches wide; it was a great advantage for wounds in awkward places. He had used cetavlon for some time. He found it useful for wounds in small animals; it was too expensive to use on horses, but on cats and dogs two or three shillings' worth went a long way and it was an excellent material for cleansing in an aural section. As to bandaging abdominal wounds, it was ridiculous to go to the trouble of making a sterile wound and then leaving it open to licking. He suggested the use of Elastoplast as a wound covering.

A Member said he never left a dressing on for more than three days, but in human surgery it was usual to allow 24 hours to clean up the discharge and then put on a fresh sterile dressing; the 24 hours was most important. He pointed out the value of normal saline in the cleansing of wounds and removal of debris.

Miss Welch asked Mr. Wilson the area covered when using plaster for strained tendons. In cleaning wounds Trueta used a soft brush. She had found that most animals would leave the wound alone, but occasionally one would get at the stitches straight away, long before sepsis could have occurred.

Mr. Wilson: He covered the whole tendon from the knee to the fetlock or the hock to the fetlock. It was necessary to see that the plaster was moulded into the tendon as it might be necessary to replace the plaster.

Mr. Builder: For covering a sutured wound the use of the gauze pad was satisfactory in the majority of cases. He did not like bandages. Gauze pads were not expensive and did not worry the patient. One always got the odd animal which would tear anything off, but the majority did not worry and the gauze pad was protection for gross contamination.

Professor G. H. Wooldridge: He did not agree that the plaster was likely to solve the problem in the case of strained tendons. The better procedure in the first instance where there was considerable swelling was diffused pressure with thick cotton-wool for 24 to 48 hours and then the application of more lasting pressure. When the swelling was reduced they could use a layer of lint and a long adhesive strapping with the non-sticky side inwards and a second layer reversed over it; it would remain on for a month or six weeks and the horse could be given exercise and be more ready for work or training. Nor did he agree with Mr. Wilson that plaster was responsible for success in the wound dressed with sulphanilamide, but thought the primary cause of the improvement was the antibiotic. He had used such dressings very effectively in wounds of horses and dogs which were often contaminated as one might be 24 hours before getting to them. The advantages

FURTHER EXPERIMENTAL INFECTIONS OF THE BOVINE UDDER WITH *STREPTOCOCCUS AGALACTIAE*

BY

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INTRODUCTION

In previous reports (*J. comp. Path.* **59.** 19 to 41) results were given of experiments on the transmission of *Str. agalactiae* by hand milking and by infusion into the udder. The present paper gives an account of further similar experiments, the results being correlated with the earlier findings.

EXPERIMENT I (1947)

It has been shown in previous experiments that certain cows could be infected readily by wet milking with *Str. agalactiae* mastitis secretion and by infusion of secretion into the udder. The experiment here described was carried out to find whether, in the same cows, infection could be as readily produced by the external application of cultures of *Str. agalactiae* to the teats during milking.

ANIMALS USED.—Three cows, all of which had been previously infected with *Str. agalactiae*, were available.

Cow 895.—An Ayrshire cow in the 15th week of her fifth lactation had been solidly infected in all four quarters in the field in her fourth lactation. The infection had lasted throughout four months of observation, at the end of which she was treated with penicillin and proved free from infection by repeated bacteriological examinations. Four weeks later she was experimentally infected by infusion of *Str. agalactiae* mastitis secretion.

Cow 930.—A Shorthorn cow in the 15th week of her fifth lactation had been infected naturally in the field in three quarters in her third lactation. At the time of purchase she had one non-secreting quarter. Infection was removed by penicillin infusions. In her fourth lactation she was found to be susceptible to infection by the external application of secretion and later by infusion of secretion.

Cow 962.—A Friesian cow in the seventh week of her seventh lactation had been infected in the field in her fifth lactation and her susceptibility to experimental infection was proved in the same way as Cow 930.

The quarters of these cows which became infected in these previous experiments are shown in Table I.

The three cows were treated with penicillin before the end of the preceding lactation and were shown to be free from infection by 16 negative bacteriological examinations before drying off, and by eight to 15 examinations after calving down to their present lactation.

METHODS.—The strain of *Str. agalactiae* used was the same as that present in the secretion used in the previous experiments. The medium used for the final cultures was a 2 per cent. equine serum, 1 per cent. gelatin, bacto-peptone broth. The incubation period varied between eight and 15 hours, giving viable counts of from three to ten millions per 1 ml. This broth, when applied to the teats and allowed to dry, became slightly sticky.

The cows were almost equal in milk yield (3·5 gallons per day) at the beginning of the experiment. The animals were housed in separate premises and care was taken not to carry infection from one cow, should it become infected, to others still uninfected. Sterile rubber gloves were used for milking each cow and cultures were applied liberally to the teats immediately before and during milking for a period of five weeks. Bacteriological examinations of quarter milk samples were carried out daily. Before sampling, the teat ends were very carefully cleaned with swabs moistened with methylated spirit.

RESULTS.—All three cows became infected by the end of four weeks of exposure. The times taken from the commencement of the experiment until infection appeared are given in Table I. The quarters which resisted infection in the previous lactation were again resistant in this experiment.

The milk of three infected quarters showed clinical abnormality during the fourth week. There were no sores or macroscopic injury on any teat during the five weeks of exposure.

TABLE I

Cow	Quarter	Mastitis secretion externally	Mastitis secretion infused	Culture externally
930	L.F.	+ in 11 days	+	+ in 7 days
	L.H.	+ in 7 weeks	+	+ in 8 days
	R.H.	+ in 5 weeks	+	+ in 2 days
962	L.F.	+ in 13 weeks	+ (transient)	+ in 8 days
	L.H.	+ in 8 days	+	+ in 7 days
	R.F.	—	+ (transient)	—
	R.H.	—	+ (transient)	—
895	L.F.	+ (natural infection)	—	—
	L.H.	+ (" ")	+	—
	R.F.	+ (" ")	+	+ in 4 weeks
	R.H.	+ (" ")	+	+ in 4 weeks

EXPERIMENT II (1947-48)

ANIMALS USED.—*Group I* (First calving heifers). This group consisted of eight Ayrshires, Nos. 1177, 1178, 1183, 1184, 1185, 1187, 1197, 1198, and one Friesian, No. 1200.

In this group of Ayrshires there was no mastitis or streptococcal infection of the udder before the experiment began. The Friesian (No. 1200) had been naturally infected in the field with *Str. agalactiae* (type 1 b) in all four quarters. This infection was removed by penicillin infusion before the animal was transferred to the cow byre.

Group II (Second calvers). This consisted of four Ayrshires, Nos. 963, 965, 968 and 971, and one Friesian, No. 966. All these animals had been exposed to experimental infection in the previous lactation (1946-47). Two cows (Nos. 966 and 968) had become infected during that experiment.

Group III (Third calvers). This consisted of five Ayrshires (Nos. 756, 758, 759, 766, 767). In the 1946-47

of soap and water were very much underrated; soap and water was one of the finest agents and after the wound had been soaked with a chlorine disinfectant, a few drops of clove oil was one of the most powerful antiseptics and very prolonged; it was most helpful. While many of the modern methods of the treatment of wounds were useful in many ways, they should not forget the old remedies and procedures which had proved most useful and were apt to become forgotten rather to the disadvantage of the surgeon. For many of the bone troubles plating and pinning was not necessary. With greenstick fracture and with the bone at an angle it was possible to operate by sawing a wedge shape out of the bone so that the limb was able to straighten. If done properly and it was supported by a splint, it was possible to get a perfectly straight leg.

Mr. SINGLETON mentioned the advantage of removing injured skin where scarring was inevitable otherwise. It was satisfactory to make a triangular wound, draw the skin together, suture with nylon, and leave the sutures in for six or seven days.

experiment four of these cows had become infected. Cow No. 759 resisted infection, both by hand milking and by infusion.

Group IV (Older cows, in their fourth to seventh lactations). This group consisted of one Ayrshire, No. 895, two Shorthorns, Nos. 928 and 929, and one Friesian, No. 964. All these animals had been previously infected.

Management and Laboratory Methods.—The methods used in this experiment were the same as those described in the previous publication (Lancaster & Stuart, 1949). Milking was by hands dipped in secretion from a donor cow infected with the same strain of *Str. agalactiae* as that used previously. This method of exposure was continued for seven months. During the last month cultures of the same strain of *Str. agalactiae* were added to the secretions.

Experiment II (*a*)

At the end of the period of infected hand milking (2.6.48), all cows were infused with three injections of 100,000 units of penicillin per quarter on alternate days. Following an interval of four weeks to establish a bacteriological cure, all quarters were infused with 1 ml. of the original strain of *Str. agalactiae* (Todd and Hewitt broth, viable count 3,000,000).

This experiment lasted seven weeks, after which the animals were again treated with penicillin and allowed to go dry.

Experiment III (1948-49)

Animals Used.—Fourteen animals were available, all of which had been in the previous experiments, with the exception of 1322 and 1491, both of which had been infected in the field and subsequently cured.

Group I (First calving heifers). No animals were available for this group.

Group II (Second calvers). This group consisted of four Ayrshires (Nos. 1177, 1178, 1183, 1198) and one Friesian, No. 1200.

Group III (Third calvers). This group comprised four Ayrshires (Nos. 963, 965, 971, 1322) and one Friesian, No. 966.

Group IV (Fourth calvers). Two Ayrshires were available (Nos. 756 and 758).

Group V (Cows in their fourth and seventh lactations). Two animals were used. One Shorthorn, No. 1491, and one Ayrshire, No. 895.

Management and Laboratory Methods.—In this experiment the method used for transmission of *Str. agalactiae* was by machine milking (bucket type). Before milking each cow, the standard milking machine teat cups were dipped into secretion from a donor cow infected with the same strain of *Str. agalactiae* as used in the previous experiments. There was no hand stripping and no disinfectant was used in the byre. At the end of each milking the teat cups and rubbers were sterilised by flowing steam. The buckets were sterilised twice a day in a steam chest. The method of collection and examination of milk samples was the same as that described previously. This experiment lasted 13 weeks.

Experiment III (*a*)

On the termination of the machine milking experiment (11.5.49) all cows were treated with two doses of 100,000 units of penicillin per quarter. Two months later, during which time regular bacteriological examination had shown the animals to be free from infection, all quarters were infused with 1 ml. of culture of the original strain of *Str. agalactiae* (viable count, 3,000,000 organisms).

Results

Table II shows the result of the two experiments (1947-48 and 1948-49) now being reported. The results of the previously reported experiment (1946-47) are included for ease of reference. This table gives the numbers of quarters which developed permanent *Str. agalactiae* infections—that is, an infection lasting until the end of the experiment. These findings were based on the results of the direct plating of 0·1 ml. of the milk sample and did not include the results following enrichment. It will be seen that some cows (*i.e.*, 1200, 756, 758, 895) were more susceptible than others (*i.e.*, 963, 965, 759); also that cows once susceptible usually remained so in subsequent lactations. This aspect is further emphasised in Tables IV and V.

Table III gives the numbers of quarters permanently infected in the three experiments. As shown in Table II, cow No. 1200 was very susceptible, while cow 759 was resistant; if these two extreme types of cows are excluded from the results in Table III, the increase in susceptibility with increasing age becomes more marked.

Table IV shows the relationship between previous infection by either hand or machine milking or by infusion and the subsequent susceptibility to a new infection produced by infusion. This shows that the higher infection rate occurred in those animals which had been previously infected.

Table V shows the results of three experiments by external application of infected material, a comparison is made between infection rates in cows which had been previously infected by any means and those which had not. This supports the findings shown in Table IV.

Discussion

Experiment I shows that cows which were readily infected in earlier experiments, using mastitis secretions as the infecting material, were quickly infected by wet milking with cultures of *Str. agalactiae*. The results in Table II show that some cows were very susceptible to infection by the external application of infected material to the teats and to infusions in repeated experiments over a period of three lactations. These cows were mainly in the older group, *e.g.*, 930 and 928, but there was one cow (1200) which, from its first lactation onwards, was just as susceptible. On the other hand, there was a small number of cows, *e.g.*, 759 and 963, which showed a high resistance throughout the experimental period, to the end of their fourth lactation. A larger number were less obviously resistant to infection and the results in these varied from experiment to experiment, but there was a general trend towards an increasing-with-age susceptibility. It was noticed throughout the whole of this work that when susceptible cows such as 930, 928, 1200 were free from *Str. agalactiae* infection, those organisms were replaced by micrococci and diphtheroids (*C. bovis*). In contrast to this, resistant first calving heifers gave almost sterile bacteriological results and animals which had maintained their resistance to *Str. agalactiae* to their fourth lactation generally gave a bacteriological picture identical with that of resistant young cows. This would suggest that the resistance of quarters is not specific.

In considering Table III it should be noted that the first hand milking experiment (1946 to 1947) gave a much higher over-all incidence of infection than did the subsequent similar experiments. In any one of the three lactations there was a higher rate of infection in the older cows. The results of infection by infusion for any one group of cows in succeeding years also suggest an increasing-with-age susceptibility, *e.g.*, 43·7 per cent., 68·7 per cent., 87·5 per cent. in Table III.

TABLE II

Cow No.	Age when obtained (in lactation)	Infected naturally in field	1946–47 Hand milking (secretion)	Age	1946–47 Infusion (secretion)	1947–48 Hand milking (secretion and culture)	Age	1947–48 Infusion (culture)	1948–49 Milking machine (secretion)	Age	1948–49 Infusion (secretion)
1177	1st	Not exposed	Not exposed		Not exposed	0/4	1	Not exposed	1/4	2	Not exposed
1178	,,	,,	,,		,,	0/4	1	0/4	0/4	2	,,
1183	,,	,,	,,		,,	1/4	1	2/4	0/4	2	0/4
1184	,,	,,	,,		,,	0/4	1	0/4	Removed from herd		
1185	,,	,,	,,		,,	0/4	1	0/4	,,		
1187	,,	,,	,,		,,	0/4	1	0/4	,,		
1197	,,	,,	,,		,,	0/4	1	1/4	Not exposed		2/4
1198	,,	,,	,,		,,	0/4	1	0/4	3/4	2	4/4
1200	,,	4/4	,,		,,	4/4	1	4/4	1/4	2	4/4
963	1st	Not exposed	0/4	1	2/4*	0/4	2	0/4	0/4	3	0/4
965	,,	,,	0/4	1	0/4	0/4	2	1/4	0/4	3	0/4
966	,,	,,	1/4	1	1/4	0/4	2	0/4	3/3	3	2/3
									Cow No. 1322		
									3/3	3	3/3
968	,,	,,	2/4	1	1/4	1/4	2	2/4	Not exposed	3	Not exposed
967	,,	,,	0/4	1	3/4*	Removed from herd					
969	,,	,,	0/4	1	2/4*						
971	,,	,,	0/4	1	0/4	0/4	2	2/4	0/4	3	Not exposed
756	1st	Not exposed	2/4	2	1/4	1/4	3	4/4	1/4	4	4/4
758	,,	,,	3/4	2	1/4	1/4	3	3/4	0/4	4	4/4
759	,,	,,	0/4	2	0/4	0/4	3	1/4	Not exposed	4	0/4
766	,,	,,	1/4	2	4/4	0/4	3	1/4	Removed from herd		
767	,,	,,	1/4	2	1/4	0/4	3	3/4	,,		
896	3	4/4	Not exposed	3	2/2	0/2	4	2/2	Removed from herd		
									Cow No. 1491		
									4/4	5	2/4
930	4	3/3	3/3	4	3/3	Not exposed	5	Not exposed	Not exposed		
895	5	4/4	Not exposed	5	3/4	0/4	6	4/4	1/4	7	4/4
929	5	Bulk sample + ve	3/3	5	2/3	Not exposed	6	Not exposed	Removed from herd		
962	6	,,	2/4	6	1/4	4/4	7	4/4	,,		
964	6	Uncertain	4/4	6	3/4	Not exposed	7	Not exposed	,,		
928	7	Bulk sample + ve	4/4	7	Not exposed	,,	8	4/4	,,		
970	7	,,	1/3	7	2/3	0/3	8	3/3	,,		

Age is the lactation at the time of the experiment. * Used for minimal infective dose.

Notes.—Above infections apply to permanent infections (*i.e.*, infections lasting until the end of experiment as indicated by the results of direct plating).

TABLE III

Lactation at time of experiment	1946–47 Hand milking		1946–47 Injection (secretion)		1947–48 Hand milking		1947–48 Injection (culture)		1948–49 Milking machine		1948–49 Injection (secretion)	
1	3/28	% 11	2/16	% 12·5	5/36 (1/32)	% 13·89 (3·1)	7/32 (3/28)	% 21·8 (10·7)		%		%
2	7/20 [7/16]	35 [43·7]	7/20 [7/16]	35 [43·7]	1/20	5	5/20	25	5/20 (4/16)	25 (25)	10/16 (6/12)	62·5 (50·0)
3					2/20 [2/16]	10 [12·5]	12/20 [11/16]	60 [68·7]	6/18	33·33	5/14	35·7
4–7	17/21	80·9	14/21	66·6	4/13	30·7	17/17	100	6/16	37·5	14/20 [14·16]	70 [87·5]

Quarters permanently infected with *Str. agalactiae* as indicated by the results of direct plating.

Note.—( ) results excluding cow No. 1200.
[ ] results excluding cow No. 759.

TABLE IV

Lactation at time of experiment	1946–47 Infusion				1947–48 Infusion				1948–49 Infusion			
	Cows not previously infected		Cows previously infected *		Cows not previously infected		Cows previously infected *		Cows not previously infected		Cows previously infected *	
	Cows exposed	Cows infected	Cows exposed	Cows infected	Cows exposed	Cows infected	Cows exposed	Cows infected	Cows exposed	Cows infected	Cows exposed	Cows infected
1	963 965 971 967 969	963 967 969	966 968	966 968	1178 1184 1185 1187 1197 1198	1197	1200 1183	1200 1183				
2	759		756 758 766 767	756 758 766 767	965 971	965 971	963 966 968	968			1183 1197 1200 1198	1197 1200 1198
3					759	759	756 758 766 767	756 758 766 767			963 965 966 1322	966 1322
4–7			896 930 895 929 962 964 970	896 930 895 929 962 964 970			896 895 962 928 970	896 895 962 928 970			756 758 759 1491 895	756 758 1491 895
Total	6	3	13	13	9	4	14	12	0	0	13	9

* Including cows found naturally infected in the field.

TABLE V

COWS PERMANENTLY INFECTED

Lactation at at time of experiment	1946–47 Hand milking				1947–48 Hand milking				1948–49 Machine milking			
	Iufections in cows not previously infected		Infections in cows previously infected *		Infections in cows not previously infected		Infections in cows previously infected *		Infections in cows not previously infected		Infections in cows previously infected *	
	Cows exposed	Cows infected	Cows exposed	Cows infected	Cows exposed	Cows infected	Cows exposed	Cows infected	Cows exposed	Cows infected	Cows exposed	Cows infected
1	963 965 966 968 971 967 969	966 968			1177 1178 1183 1184 1185 1187 1197 1198	1183	1200	1200				
2	756 758 759 766 767	756 758 766 767			965 971		966 968 963	968	1177 1198 1178	1177 1198	1200 1183	1200
3					759		756 758 766 767	756 758			966 1322 963 965 971	966 1322
4–7			930 929 962 964 928 970	930 929 962 964 928 970			895 962 896 970	962			756 758 1491 895	756 1491 895
Total	12	6	6	6	11	1	12	5	3	2	11	6

* Including cows naturally infected in the field.

Tables IV and V show that animals previously infected were more susceptible than those which had no previous infection, irrespective of age, and part of the apparent increasing-with-age susceptibility may have been due to this factor. From the totals of Tables IV and V it will be seen that 51 out of 69 (74 per cent.) attempts to infect cows previously infected were positive, whereas only 16 out of 42 (36 per cent.) attempts were positive in cows not previously infected. This confirms earlier findings that a previous infection confers no immunity to a subsequent exposure.

Summary

A description is given of 114 attempts to infect 31 cows of varying age with *Str. agalactiae* over three succeeding lactations. Three methods of infection were used, viz., infusion, hand milking and machine milking.

Results show that some cows were very susceptible to repeated experimental infections, over the period, while others were very resistant, and that in the majority of cows susceptibility increased with age and/or previous infection.

Acknowledgments.—We wish to express our thanks to Dr. A. W. Stableforth for his help and advice throughout this work.

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Museum of Rural Life

An interesting and commendable enterprise is being sponsored, not by one faculty, but by Reading University as a whole, in the formation of a museum of English rural life. "The aim," says the museums correspondent of *The Times*, "is to bring together objects illustrating rural life in England, especially in relation to farming in all its forms and to the rural crafts, many of which are vanishing or at least changing their methods and tools. These things will be collected on a national basis, so as to show the wide regional variation in the way of doing a particular job.

"The exact form the museum will take will depend, no doubt, on how the collection develops, but for the present, at any rate, those in charge of it are not intending to build a folk museum on the Scandinavian model. The final method of housing the museum has yet to be decided upon. The storage space available is adequate to the immediate future, which must be devoted to building up the collection rather than to displaying it immediately. For the moment nothing is on view, though a large number of specimens have been received.

"The most notable acquisition so far is the gift, by Mr. H. J. Massingham, of the collection which he formed and which he described in his book 'Country Relics,' published in 1939. It contains, among many other things, a Gloucestershire long plough, a set of latten bells (carried by the leading horse of a wagon team), much lace-making equipment, and hand tools for thatching, slate-making, dry-stone walling, carpentry, and other rural crafts, past or present.

"Though display will in due course have its proper place, this museum is conceived primarily as a reference collection for students of English rural life. A card is filled in for every object received, with a photograph and a description of the process in which it was used. There is also being compiled a card index of the literature of the subject, arranged by objects. These two sets of cards will be kept in the university library, where they can be consulted on request.

"The university will welcome the offer of gifts or loans, or information of the whereabouts of suitable material, much of which must exist on farms and in cottages. Letters should be addressed to Mr. J. W. Y. Higgs, Museum of English Rural Life, The University, Reading."

* * * * *

Weekly Wisdom

"Many persons have a wrong idea about what constitutes true happiness. It is not attained through self-gratification, but through fidelity to a worthy purpose."—Helen Keller.

CLINICAL COMMUNICATION

ANGIOSARCOMA (HAEMANGIO-ENDOTHELIOMA) IN THE THORAX OF A MULE*

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Veterinary College, Madras

At Imphal, in 1945, a bay five-year-old mule was admitted to No. 10 Indian Field Veterinary Hospital, with the following history. The animal was taken out for watering three days earlier but refused to drink. There was laboured breathing and loss of appetite.

On admission the following symptoms were noticed: short stertorous breathing, mostly abdominal, accompanied by distinct laryngo-tracheal sounds. These sounds were not unlike those one meets with in bronchitis and roaring. The former was set aside as no cough was present, while the latter was ruled out on the grounds that (*a*) the animal was too young, (*b*) the sounds were produced even while at rest and (*c*) the onset was quite sudden. Glanders was next considered as a likely possibility, but in the absence of discharge from nose, ulcers on the Schneiderian membrane, etc., it was dropped.

On percussion, no appreciable abnormality could be detected. On auscultation, sounds not unlike those obtained in pleurisy were heard. At certain parts bronchial sounds were present. Just as a routine measure, the animal was malleined (I.D.P. method), but was negative. The mucous membrane was slightly congested. Temperature was normal.

The animal died suddenly in the small hours of the next morning. On necropsy a huge tumour was found occupying the whole space between the lungs, heart, trachea, ribs and the vertebrae. There was pressure on the trachea to such an extent as to cause dyspnoea and the sounds mentioned above. The trachea contained a sanguineous frothy fluid. The appearance of the pericardium was not unlike chronic pericarditis. Pea- to grape-sized tumours were noticed throughout the parenchyma of the lungs, on the mediastinum and pericardium. There seemed to be something of an invasion into the heart and lungs. The trachea could not be dissected to its full extent as in its posterior portion, it was firmly adherent to the tumour. The tumour so encroached upon the wall of the aorta that, when the aorta was slit open through the ventricle, the thickness of the wall was enormous, nearly four times its normal thickness. At two places on the ventral surface of the aorta, two patches of easily dissectable, whitish, friable masses were found. There was some degree of pleurisy (dry type) with adhesions at certain places. The lymphatic nodes were swollen. The tumour was reddish in appearance and weighed not less than 2 lb. All other organs were normal.

Microscopical Appearance.—The microscopical appearances of different sections from different places depended upon the age of the tumour at that particular site. In actively growing tumours, the cells exhibit typical endothelioblasts, while in older ones these cells undergo a certain amount of degeneration. So we find cells like those of sebaceous and lipoid tissues.

The cells themselves were polyhedral, sometimes elongated, with clear cytoplasm and vesicular nucleus with two

* Read at the monthly meeting of the Madras District Veterinary Assistant Surgeons' Service Association held on August 27th, 1949.

nucleoli (n : N ratio 1 : 15). Capillary formation in the early ones was not so evident, while in the older ones evidence was present.

In the heart the tumour cells had invaded the myocardium, thereby widening the muscle cells and in certain places fragmentation of the muscle cells was found. Fatty degeneration of the muscle cells was also present.

Discussion

It is true that vascular malformations, popularly known as "haematomas," which are not true neoplasms, are often mistaken for angiomas. But the tumour in question here has been studied thoroughly in order to rule out such a possibility on the grounds that the tumour had definite powers of progressively disproportionate growth which are absent in vascular malformations. Besides, the tumour had distinct demarcations and did not show intimate mingling of the superfluous vessels with the normal tissue of the particular part where it was located.

It is also true that sarcomas of other kinds with greater vascularity and also diffusely cellular and highly vascular growths of uncertain nature are often misdiagnosed as angiosarcomas. Many anaplastic growths may show numerous vessels invested closely with neoplastic cells, giving a false appearance of special angioblastic properties of the tumours. It is very difficult to set up a definite standard on the degree of vascularity, and the ratio of vascular channels to intervascular cellular growth required in an anaplastic mesenchymal tumour in order to designate it as a specifically vasoformative one should be noted. But with sufficient experience, careful examination will be very help-

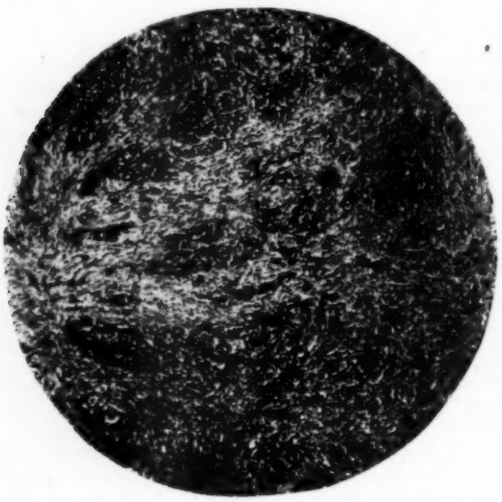

Fig. 1.—Actively growing masses of tumour cells. From the lung. (× 60. Haemotoxylin and Eosin.)

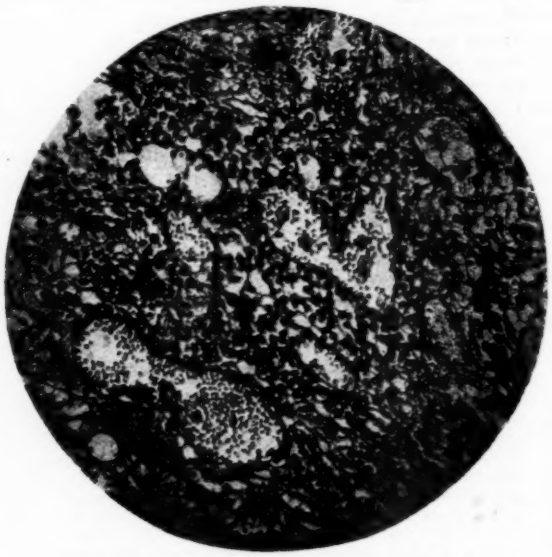

Fig. 3.—Showing blood vessel formation with R.B.C.s in some of them. (× 270. H. and E.) From nodule in lung.

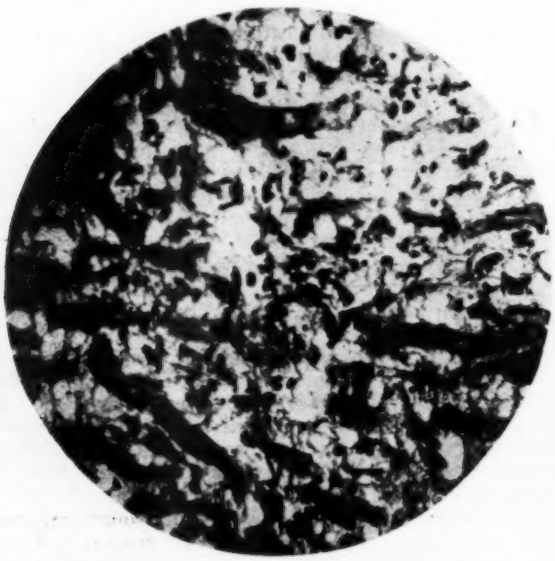

Fig. 2.—Showing tumour cells invading the myocardium—muscle cells separated—fragmentation of muscle cells evident. (× 270. H. and E.) From heart.

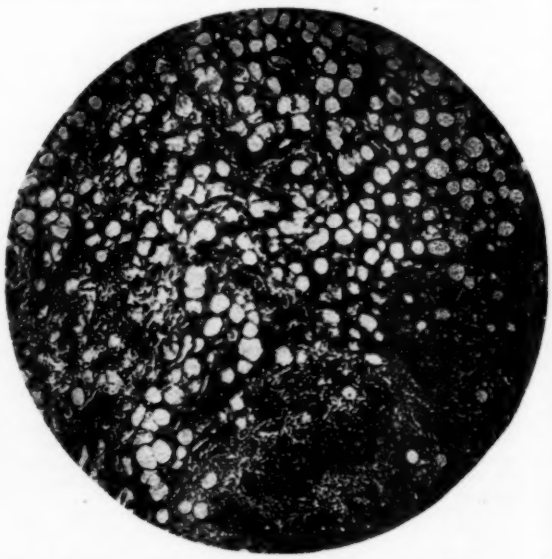

Fig. 4.—Showing degeneration, which resembles a lipoma. The tumour proper can be seen at the bottom corner. From lung. (× 270. H. and E.)

ful in enabling one to arrive at a correct diagnosis. Therefore, all parts of the tumour were thoroughly examined to attain sufficient confidence regarding its angiomatous character. Secondly, microscopic examination of all parts of the tumour revealed preponderance of cells of angioblastic type and the highly vascular pattern of tumour with distinctive and widespread features strongly suggest the true angioblastic nature of the growth. Lastly, detailed necropsy study was made to make sure that the tumour in question was a primary one and not a peculiar metastasis of some unknown tumour elsewhere in the body.

Coelomic metastasis of symptomless primary tumours in other parts of the body has been misdiagnosed very often and many reported cases of primary neoplasm of serous membranes later were found to be instances of serosal disease secondary to undiscovered tumours in the neighbouring organs. But in the case of this neoplasm such a possibility has been thoroughly investigated by detailed necropsy examination. The tumour was found to be restricted to the thoracic cavity, occupying the space between heart, lungs, trachea, ribs and vertebrae with definite infiltrative and invasive tendency into organs of the thorax. There were no indications of neoplasms outside the thorax and the absence of these lesions beyond the thoracic cavity suggested that the tumours observed were not metastatic lesions of some unrecognised primary tumour elsewhere. I believe, therefore, that the tumour was primary in nature, arising from the endothelium of the vascular channels in the thorax, multifocal in origin and with an infiltrative tendency into adjacent organs.

I do not intend to enter into the controversy regarding the most abused term " endothelioma." However, the term is used here in a very broad sense to specify the histogenesis of the tumour and to emphasise that the endothelium constitutes the main source of the neoplastic cells in this case. Histologists use the term " endothelium " specifically only for the cells lining the vascular cavities and " mesothelium " for the cells lining the serous cavities, whereas most pathologists still continue to designate as endothelium both coelomic and vascular lining. Other pathologists use this term even for the cells lining meningeal and synovial cavities and the tumours arising from them have been labelled " endotheliomas." Therefore to be more specific and precise and to avoid all confusion the term " haemangio-endothelioma " has been used deliberately here to indicate that the flat layers of cells lining the vascular cavities form the origin of the neoplastic tissue. However, I agree that on the basis of histogenesis there are reasons to believe that a sarcoma arising from the layers of cells lining vascular spaces would not be in any way different from sarcoma arising from the immediately extravascular cells. It has been accepted that these cells are endothelial merely by virtue of their surface positions and if in a tumour they do not hold surface positions they cease to be endothelial. Therefore a cellular vascular sarcoma may develop either from preformed vascular endothelium or its vessels may display its vasoformative properties. Besides, all young mesenchymal cells are highly plastic and interconvertible and controversy over their endothelial and non-endothelial nature is unnecessary. Some pathologists have favoured " endothelioma " merely for the sake of convenience by arguing that it is useful to designate a distinctive group of malignant tumours with vasoformative characters. But for the reasons already stated the term " angiosarcoma " is most appropriate and may be preferred. When terms like " angioma," " meningioma " and " synivioma " are already in use and when these tumours have nothing more in common than other tumours of mesenchymal origin, to force them into one class together under one common name is artificial, superfluous and against the principles of histogenesis. Thus the use of the term " angiosarcoma " will be in accordance with histogenetic principles and will maintain the uniformity with the names of other specific kinds of sarcomas. Besides, it is less cumbersome than " haemangio-endothelioma."

The term " mesothelioma " has been used in a very superficial way to describe the similarity in appearance of certain parts of the tumour where vasoformative tendency was absent. After all, mesothelioma can be called coelomic endothelioma, if endothelium is used for the cells lining the coelomic cavities according to the definition of endothelium by some pathologists. So I find no case for argument against the use of " mesothelioma " for tumours which arise from mesothelium.

Conclusion.—Endotheliomata are rare in domesticated animals and rarer still in equines. Feldman (1932) noticed only two instances and Jackson (1936) only three. This is probably the third time that such a tumour has been reported in mules.

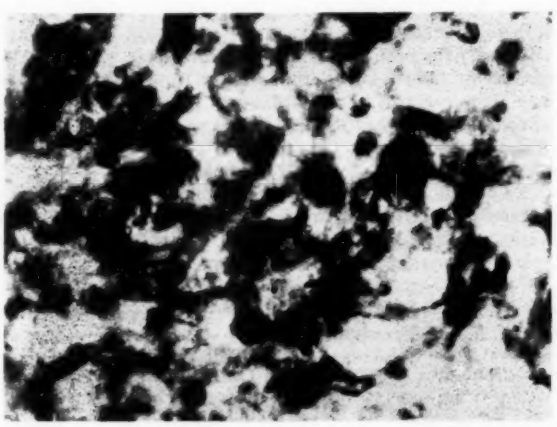

Fig. 5.—Same as in Fig. 1, with tumour cells highly magnified. (× 1,000. H. and E.)

Summary

(1) An angiosarcoma as found in the thorax of a mule is reported.

(2) The gross and microscopical appearances of this tumour are described.

(3) The grounds on which the diagnosis of this tumour is based are detailed.

Acknowledgments.—I wish to thank Major D. A. D. Brydon (formerly of the R.A.V.C.) for his keen interest in this tumour, while commanding No. 10 Indian Field Veterinary Hospital. I am indebted to Mr. M. Y. Mangrulkar, M.Sc., M.R.C.V.S., D.T.V.M. (Edin.), the then Lecturer in Pathology, Madras Veterinary College, and to Dr. Syed Mohiyiddin, B.Sc., B.V.Sc., Ph.D., for their help in the diagnosis of this tumour and to the Principal, Madras Veterinary College, for facilities in the making of photomicrographs.

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ABSTRACTS

[Persistence of *Brucella abortus* Infection in Cattle. MANTHEI, C. A., & CARTER, R. W. (1950.) *Amer. J. vet. Res.* **11.** 173.]

The period of time during which brucella-infected animals excrete organisms is most important from the standpoint of prevention, control and eradication. Studies on swine brucellosis have shown that genital infections may persist in sows for as long as 36 months and in boars for 51 months. In goats it has been shown that urogenital, blood-stream and udder infection may persist for two years. As long ago as 1913 it was shown that infection may persist in the udder of cows for upwards of four years.

The present paper describes three separate approaches to the problem of determining the persistence of *Br. abortus* infection in cattle. The first series of observations indicated that the persistence of a bacteraemia, following conjunctival infection, might be used as a criterion for estimating the degree of resistance to brucella infection because bacteraemia was not demonstrated in fully resistant strain-19 vaccinated cows whereas in highly susceptible unvaccinated controls there was a high incidence and persistence of blood-stream infection, in some cases persisting for at least two years. Strain-19 cattle not fully protected showed a transient bacteraemia.

The second series of experiments indicated that there was little difference in the course of infection between cows artificially infected through the conjunctiva and those infected naturally.

In observing the blood, genital and udder infections of 18 artificially infected cattle for two years, *Br. abortus* was recovered from the blood stream of one cow after 97 weeks and from the genital tract of another after 101 weeks. Genital infection was common for one month after parturition and tended to persist in the non-gravid uterus. Organisms were not isolated from the vaginas of 12 cows pregnant for the second time although three were proved to be shedding brucella at the time of their second parturition or shortly thereafter. *Post-mortem* studies confirmed that *Br. abortus* localises most frequently in the udder and supramammary lymph gland.

J. S. P.

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[Infectious Keratitis of Cattle: A Preliminary Report. FARLEY, H., *et al.* (1950.) *Amer. J. vet. Res.* **11.** 17.]

Keratitis is said to occur in acute, chronic or mild forms with a wide variation in resistance among individual animals, thus leading to some differences in the degree of clinical symptoms seen. The authors were unable to confirm the previous finding of Jones and Little, and Baldwin that *Haemophilus bovis* was a primary aetiological factor. The authors differentiate between infectious keratitis and nutritional keratitis—the former having an incidence of up to 10 per cent. in a herd irrespective of the standard of nutrition.

[It is disappointing to see no reference to the work of Coles in S. Africa, Blakemore in Great Britain and Beveridge in Australia, all of whom postulate the presence of cell-inclusion bodies (Rickettsia) in the conjunctival cells as being of aetiological significance in infectious keratitis as investigated by each respectively. Even though this may have no significance in the condition reported, the presence or absence of such inclusion bodies might have been noted with advantage.—*Abstractor.*]

W. T. R.

[Lambing in Relation to the Diet of the Pregnant Ewe THOMSON, A. M., & THOMSON, W. (1949.) *Brit. J. Nutrit.* **2.** (4) 290–305.]

The animals employed were 81 Sutherland Cheviot gimmers (one and a half years of age) mated with three rams of the same breed. They formed a reasonably "even" commercial flock, but varied considerably in size (weight range, 35 to 52·7 kg.), build and fatness. Since it has been shown that in human beings maternal height and the birth weight of infants are correlated (D. Baird (1945), *J. Obstet. Gynec.* **52.** 339) the flock was randomly distributed in respect of size. The index of size was L × B, L being the length between the angle of the sternum and the tuberosity of the ischium, and B the breadth between the external angles of the ilium.

After the tenth week of pregnancy, up to which time all received a diet of timothy hay, swedes and concentrates in the proportion by crude weight of 1 : 3 : 1, together with water *ad lib.*, a mineral lick and 5 ml. of cod-liver oil daily, the division into high-plane and low-plane groups was made. The high-plane group received hay, swedes and concentrates in the proportions of 1 : 3 : 1·5, and the low-plane group the same foodstuffs in the proportions of 1 : 3 : 0·25. The food intake was regulated by feeding in individual cages so as to produce a weight increase of approximately 30 per cent. in the high-plane group and a weight decrease of some 5 per cent. in the low-plane group.

In low-plane ewes carrying single lambs, there was little impairment of the vitality of lambs at birth, despite a considerable reduction of birth weight. The vitality of such lambs was in fact similar to that of twin lambs from high-plane ewes, although more died, presumably from maternal factors. The low-plane ewes carrying single lambs showed evidence of weakness after parturition, had poor udder development and little milk, and in some cases exhibited impaired maternal instinct.

In the case of low-plane ewes carrying twins, the vitality of the lambs at birth was seriously impaired, milk production was negligible, and in many cases maternal interest in the lambs was absent. The stillbirth rate in low-plane twin lambs was 32 per cent.

These findings are considered to be of significance in relation to practical sheep farming. It is pointed out, however, on the basis of comparison with some field records, that there are probably breed differences and that Blackface ewes on natural hill grazings appear able to withstand a much heavier loss of weight during pregnancy than the animals employed in these experiments.

By judicious application of heat and bottle feeding it was possible to revive lambs that would obviously have died. Once temperature had started to fall rapidly, however, resuscitation was very difficult.

Among other points of interest were that (i) the duration of pregnancy varied much more widely in the low-plane ewes; (ii) weight of placenta and number of cotyledons tended to increase with birth weight; and (iii) seven low-plane ewes, six of them later being found to be carrying twins, developed signs of pregnancy toxaemia late in pregnancy.

A. N. W.

Royal College of Surgeons.—Speaking at the annual dinner of the Royal College of Surgeons, the President, Sir Cecil Walkley, said that despite gifts of £250,000 from Lord Nuffield and £80,000 from the Wellcome Trustees, the Royal College of Surgeons still had to raise about £400,000 for its new buildings. The plans for the new buildings, which would provide a great hall and over it museums, were well advanced. Subject to the granting of the necessary licences, building should start this year. There would be a Nuffield College of Surgical Sciences to take about 100 resident students.

REPORT

[**Department of Agriculture, Canada**: Report of the Veterinary Director General for the Year Ended March 31st, 1950.]

This is the report of the Health of Animals Division, which is a branch of the Production Service of the Department of Agriculture, Canada. The report is compiled by Dr. T. Childs, the Veterinary Director General, who forwards it to the Director of the Production Service, who, in turn, has forwarded it to the Minister of Agriculture, Ottawa, without any comments. It would have been of interest to have had the reactions of a senior lay administrator on this very interesting and important report.

The Health of Animals Division is divided into two Sections—the Contagious Diseases Section and the Meat and Canned Foods Section—each of which is under the control of a veterinarian.

It is recorded that during the year there was complete freedom from such important animal plagues as foot-and-mouth disease, bovine pleuro-pneumonia, rinderpest, sheep scab, dourine, glanders, hog cholera and infectious lymphangitis. Six outbreaks of Newcastle disease in poultry were dealt with effectively by the slaughter method, but it is anticipated in the report that some modification may be required in future in dealing with importations of poultry, owing to the prevalence of this disease in countries with which Canada trades. (It may be added that an Order dated July 11th, 1950, has since been promulgated, under which no person shall import or introduce into Canada any poultry, raw poultry carcases or parts thereof, or poultry eggs.)

It is stated that the Provinces have been free from rabies since March, 1946, but in the summer of 1947 the presence of this disease was confirmed amongst foxes and sled dogs in the North-West Territories. By prohibiting the movement of dogs from the Territories unless vaccinated (exact method not stated) and requiring all dogs taken into the Territories to be vaccinated, the outbreak was brought under control and no cases have been reported from that area for two years.

All available Divisional Veterinarians have been engaged on the control and eradication of bovine tuberculosis during the year. The number of such veterinarians is not stated, but it is said that shortage of Divisional Veterinary staff has seriously hampered work in both Sections of the Department, and it is added that extreme difficulty is being experienced in securing veterinarians for the Meat and Canned Foods Section.

Under the Restricted Area and Accredited Herd Plans more than two and a half million cattle were tested with tuberculin, and 31,464 were found tuberculous. It is stated that the ratio of reactor cattle to the number tested is showing a satisfactory decline, indicating that the worst areas of infection have been eliminated, and a steady decline in the ratio is now expected. During the year there were under supervision 454 Restricted Areas, of which 159 are fully accredited.

Under the Brucellosis-Free Listed Herd Regulations introduced in 1947 cattle are blood tested and reactors slaughtered. Provision is also made for the vaccination of calves between four and eight months old with Strain 19. The number of herds receiving attention at the close of the fiscal year was 4,184, of which 1,943 have been certified as Brucellosis free.

Under the Meat and Canned Foods Section, although exports have declined, the number of inspected slaughterings of food animals, except swine, has remained at a high level, indicating that a higher proportion of the Canadian population is receiving inspected meats and meat products.

F. W.

(*Concluded at foot of next column*)

REVIEW

[**Textbook of Surgery for Veterinary Surgeons.** (Trans. title.) By Dr. E. SILBERSIEPE, Professor of Veterinary Surgery, Berlin, and Dr. E. BERGE, Professor of Veterinary Surgery, Giessen. 11th ed. Pp. xii + 524. Ferdinand Enke, Stuttgart.]

This book was first published in 1898 under the authorship of Dr. E. Fröhner. Editions 5 and 6 were in collaboration with Eberlein and 7 with Silbersiepe. Fröhner's name then disappeared and the present book bears the names of Silbersiepe and Berge. This book is, then, the work of men of wide experience and international reputation.

The present edition bears close resemblance to the last one published in 1943. The illustrations, excellent in character and exceedingly well produced, have been increased from 411 to 457.

The subject matter is treated on regional lines and is concise and yet comprehensive. As is to be expected in such an old-established publication, preference has been given to the horse, but, at the same time, surgical diseases of other species have been ably dealt with. The text is sound, but one cannot help feeling that, perhaps as a result of the war, the authors are somewhat out of touch with English and American literature and modern development. For example, none of the more recently applied methods of fracture repair is mentioned, and one can find no reference to the antibiotics so widely used in veterinary practice to-day. References to the contributions of English speaking workers are conspicuous by their absence. The publishers are to be congratulated on the preparation of the book which is printed on art paper, white in colour, so different from a recent English veterinary text-book the reviewer is at present perusing.

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Also received: **The House Cow.** By STUART & PAMELA JOHNSON. Cambridge: W. Heffer & Sons, Ltd. Pp. 39. Price 3s. 6d. net.

ZOOLOGICAL SOCIETY OF LONDON

Dr. Edward Hindle retires in April from the post of Scientific Director of the Zoological Society of London and will be succeeded by Dr. L. Harrison Matthews, who will act as Deputy Secretary as well as Scientific Director to the Society.

Dr. Hindle, who edits the *Proceedings* of the Society, is widely known as a parasitologist. He was the Founder and first President of the Zoological Society of Glasgow, which resulted in the creation of a zoological park at Calderpark. He has been a General Secretary of the British Association for the Advancement of Science since 1946 and was President of Section D (Zoology) in 1947. He is President of the Zoological Section of the International Union of Biological Sciences, President of the Universities Federation for Animal Welfare, Honorary Director of the International Wildfowl Research Institute and first President of the Institute of Biology, in the establishment of which he took an active part.

Dr. Harrison Matthews, holder of the Frank Smart Prize for Zoology of the University of Cambridge, has spent a number of years as a member of the scientific staff of various expeditions, notably the "Discovery" Expedition, continuing his zoological work at the University of Bristol, where he is research fellow. He has served for some years on the Council of the Zoological Society of London, and as Vice-President, while he is a member of the Tsetse Fly and Trypanosomiasis Committee of the Colonial Research Council.

QUESTIONS AND ANSWERS

The submission of questions for inclusion in this column will be welcomed; they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address. It is regretted that consideration cannot be given to questions for which solely a private reply is required.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Prevention of Foot-Rot in Cattle

Q. 378.—*Is there any method of preventing foot-rot in cattle? A high incidence of this complaint has occurred in a Pedigree Friesian herd consisting of about 30 milking cows and a similar number of young stock. The condition is confined almost entirely to the milking herd, which had a herd average of 11,134 lb. of milk last year; 27 animals had foot-rot and were treated with M. & B. 693. No hay is fed, the diet consisting of silage, straw, and a balanced ration. There appeared to be a diminution in the number of cases when the animals were compelled to walk through a 2 per cent. formaldehyde footbath daily. The condition was most prevalent in October, November, December, 1949, and seems to be reappearing, eleven cases having occurred since October 1st (date of writing, November 28th, 1950), although it is unusual for one animal to have a second attack within 12 months.*

A.—Had the question been " What is the treatment of foot-rot in cattle?" there would have been little difficulty in giving a detailed answer, for the alleviation of this condition by surgical, or more especially by medical, means has been proved to be successful in a large proportion of cases. Very little attention, however, has been paid to the prevention of foot-rot, although outbreaks such as that described by the questioner are by no means rare. There is little doubt that damage to the tissues of the foot is the most important primary cause of the disease. Cases are more common in the winter and are nearly always associated with wet and muddy conditions, although they may occasionally follow frosty weather. Under such conditions damage to the foot, more especially the interdigital space, is more likely to occur and favour the entry of infection. It is generally accepted that the most frequent infecting organism is *Fusiformis necrophorus*, an organism concerned in many types of necrotic lesions met in animals. This organism has been demonstrated in the caeca of apparently healthy pigs and may be present in the intestinal canals of other species (Hagan, 1947), whence it may presumably be excreted in the faeces. Little is known of its behaviour outside the animal body, but it is possible that a low temperature and a wet and muddy environment might favour its survival.

There is little definite evidence regarding the age incidence of foot-rot, although from clinical experience it appears to be more common in fully grown animals; but this may be because young stock are less likely to be exposed to circumstances favouring the development of the disease.

In an attempt to prevent cases steps should be taken to reduce damage to the feet by making sure that yards, approaches to buildings, gateways and the ground round water-troughs are clean, level and dry. Materials such as rough stones, ashes or clinker, which are likely to become lodged between the hooves and cause injury, should not be used for surfacing farm tracks. Clinical cases should be kept in isolation, especially if the lesion in the foot is open and discharging. Foot dressings, such as that mentioned in the question, will help greatly both by hardening the tissues and by their cleansing and bactericidal effects, but should be secondary to the other measures suggested.

It is felt that more precise information is required regarding this disease of cattle and it is hoped that this will be made available from the results of the Survey recently sponsored by the N.V.M.A. Information is also required regarding the nature of the organisms commonly associated with the condition, for although *F. necrophorus* is widely accepted as the cause, this opinion is not based on adequate investigations.

REFERENCE

HAGAN, W. A. (1947.) The Infectious Diseases of Domestic Animals. New York: Comstock Publishing Company Inc.

Calving Procedure After Correction of Uterine Torsion

Q. 379.—*Is it considered generally advisable to continue and calve the cow after correcting a torsion of the uterus as opposed to leaving the animal to calve herself?*

I have tried leaving the cow to calve herself, but returned to find no headway had been made; in fact, there was some loss of uterine fluid and dryness made subsequent calving difficult. If I proceed with the job after correction I generally tear the vaginal mucosa. Which, in your opinion, is the lesser risk?

A.—In the opinion of the respondent, no hard-and-fast answer can be given to the above question. Every case varies slightly and each must be dealt with according to its merits and the experience and good sense of the operator.

It is, broadly speaking, true that in the event of torsion of the uterus either partial or complete, normal distension of both cervix and vagina is very largely prevented because no mass of foetus or foetal fluid contained in the envelope can proceed into the pelvis, and so by mechanical means continue the dilation which commences physiologically. From this point of view it would seem advisable, having corrected the torsion, to allow some time to elapse before attempting delivery by simple traction. On the other hand, it must be remembered that one is usually called to such a case when labour has been present for several hours, as no " water bladder " or feet appear and the owner allows a considerable amount of time to elapse before calling in assistance. It is, therefore, very common to find on being called to these cases that the membranes already have ruptured and the greater part of the fluid has been lost. In many cases the uterus itself has contracted fairly considerably. In a case of this sort any delay simply makes things worse and it is often a fairly safe procedure to incise the rim of the cervix in several places if it is not completely dilated, to allow of delivery.

Aesthetically and scientifically one does object very much to too much forced extraction. On the other hand, experience has taught that the cow is able to withstand a tremendous amount of this provided there has not been much manipulation within the uterus, and very often the risk of damage to the cervix, vagina and vulva is very much less than that associated with extensive embryotomy or caesarean section.

In this respect it is always worth remembering the tremendous value of penicillin in the uterus, as has been indicated in several cases reported recently in *The Veterinary Record*.

"Hard Pad" Disease Infection

Q. 380.—*In a confirmed outbreak of "hard pad" disease in a kennels of about 30 dogs, all the in-contact non-affected dogs—consisting of about half this number—were given prophylactic doses of serum and have not contracted the disease. It is now three weeks since a puppy which was ill apparently recovered.*

(1) *When can kennels be considered free from infection?*

(2) *Would the remaining dogs have a lasting immunity to "hard pad" disease?*

(3) *Can an animal recovered from "hard pad" disease be considered to be immune?*

A.—(1) This would depend on how badly the kennels have been contaminated, *i.e.*, if there had been a lot of diarrhoea and nasal discharge, contaminating the walls, etc., and whether disinfection has been thorough. The virus, which would be contaminating the kennels, should have died out within eight to 12 weeks. The dogs in the kennels should be considered non-infectious only if there is no diarrhoea and their nasal discharge has ceased.

(2) Provided the dogs which have had serum became mildly infected with the virus, they should be actively immune.

(3) Recovery from infection with the hard pad strain of virus leaves the animal immune to further attacks with this strain of virus. Some dogs have had two attacks of what appeared to be hard pad disease, there being a three to five months' interval between the attacks. It is possible that they were two episodes in the one infection, the symptoms of encephalitis, in the first phase, being due to toxic conditions, and in the second phase being due to an actual lesion in the brain.

Correspondence

"Scottie Cramp"

Sir,—It was with interest that I read the answer to the question (377) regarding "Scottie cramp." Having had a long association with the breed in question and consequently frequent opportunities of observing this condition, may I be permitted to make a few additional points which may be of interest.

The condition certainly seems to be associated with a defect of the neurovascular mechanism which may in turn be linked with a low blood calcium level or more precisely with a low availability of calcium ions.

Blood calcium levels in this condition are frequently found to be 6 to 8 mg. per cent. and young or mild cases respond rapidly to injections of 6 to 10 c.c. of a 10 per cent. solution of calcium borogluconate given intravenously, although severe and older cases show little response to such treatment but may respond to parathyroid extract. Recently the writer had three cases in four-month-old puppies (cramp appearing five or six times daily) which responded to a single dose of calcium borogluconate.

It is interesting to note that the condition known as Leontiasis ossea in the Scottish terrier also appears to be associated with a defective calcium metabolism.

In severe cases of Scottie cramp excitement with no exercise will induce the condition, *i.e.*, at feeding time; fright due to loud noises or due to sudden movement of nearby objects; and even conditions inducing an apparent form of claustrophobia.

Yours faithfully,

85, Earl's Court Road, Kensington, W.8. *February 15th*, 1951. W. Brian Singleton.

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Calculation of Weight of a Fat Steer or Heifer

Sir,—The query in *The Veterinary Record* of February 10th as to how the weight of a fat beast can be estimated by body measurements was answered comprehensively and the reply needs little further amplification. It is of interest, however, to recall a contribution on this subject made by Wanderstock and Salisbury in the *Journal of Animal Science*, **5**, 1946. The correlation between various body measurements and live weight of beef cattle was studied and a significant relation was found between the weight of the animal and the measurements of the heart girth, height at withers, patella and body length. The most significant single measurement when establishing weight was found to be the heart girth, and the following formula gave the most reliable results:—

$$\frac{G^2 \times L}{300} = \text{weight in lb.}$$

where G = heart girth in inches and L = body length in inches.

Yours faithfully,

Veterinary Department, Town Hall, Newcastle-upon-Tyne, 1. *February 10th*, 1951. Horace Thornton.

January Quarterly Meeting of Council, N.V.M.A.

Summary of Proceedings

The quarterly meeting of Council, N.V.M.A., held in London on January 24th, 1951, gave further proof of the advance which the Association is making on a very wide front.

It will be recalled that through the medium of notices of reports of the British Council, appearing in the Association's Journal, attention was directed to the lack of recognition of the profession by that body. It is satisfactory to learn from the report of the Parliamentary and Public Relations Committee that as the outcome of subsequent representations by the Association this anomalous position is under review.

From the report of the Veterinary State Medicine Committee it was learnt that the County Milk Sub-committees for administering the Milk and Dairies Regulations appear, on the whole, to be working well, although suggestions have been received indicating directions in which the present administrative arrangements might be improved. These suggestions will receive further consideration by the Committee after the County Milk and Dairies Advisory Committees come into being and have functioned for a reasonable time.

The same report also intimated that the over-stocking of dairy cows and the exposure for sale of unfit animals and calves had been raised with the Committee.

Civil Defence.—So far the Government has not sought the assistance of the Association in forming a section of the Civil Defence Corps to deal with animals injured in the event of war, although an assurance has been given by the Home Office that the Association will be so consulted when the time comes to make such plans. On the recommendation of the Organising Committee, a letter has been addressed to the Minister of Agriculture requesting his help in stimulating early progress in that direction.

Members will be glad to learn that the Organising Committee reported having received a letter from the General Council of the Guide Dogs for the Blind Association Ltd., expressing gratitude to the profession for its interest in the welfare of guide dogs belonging to blind persons.

It was also learnt from this Committee that agreement has almost been reached between the N.V.M.A. and the Accident Offices Association on the wording of forms used by tariff insurance companies when asking veterinary surgeons to examine and report on animals proposed for insurance.

At the request of the Kennel Club, representatives have been appointed by the Organising Committee to discuss with a Sub-committee of the Club the many problems arising from veterinary examinations at dog shows.

Basis of Representation of Divisions on Council.—A report on this subject received by the General Purposes and Finance Committee from the officers indicated their view that a solution of the problem represented by the fact that there are over 1,000 members of the Association who have no representation on Council, should take precedence over dual representation, and that any scheme to overcome the difficulties arising from the latter should await results of an attempt to get these members represented on Council. A letter is to be sent to each of these, suggesting that he or she should become a member of a Division in order to remedy this.

It is hoped that ways and means will yet be found to enable the exchange between club veterinarians in New Zealand and practising veterinary surgeons in Great Britain to function reciprocally.

The control of the distribution of biological products is engaging

the attention of the General Purposes and Finance Committee. It was also reported by this Committee that, due to the initiative of the Association, new and much improved arrangements of rationing for sick horses detained in veterinary hospitals had been introduced as from January 1st by the Government departments concerned.

The impressive report of the Technical Development Committee showed that the booklet on Laboratory Aids to Clinical Diagnosis is well in hand, and we may look forward to early publication: revision of the Report on Diseases of Sheep is also being undertaken.

Artificial Insemination.—As the outcome of the conference held last autumn, a liaison committee is to be appointed to consider matters of mutual interest to the Association and the Milk Marketing Board, at whose Cattle Breeding Centres artificial insemination is practised on a large scale.

A very interesting report was also received from the Overseas Services Committee, which is doing so much to ensure satisfactory conditions of service for members already holding appointments overseas and also for those going out to fill vacancies from time to time.

1951 *Congress.*—Council expressed its appreciation of the work which has already been done in connection with the annual Congress to be held at Eastbourne from September 23rd to 29th. The Congress meetings will be held in the Floral Hall of the Winter Gardens, while the Pavilion, which is in the same building, has been reserved for the exhibition of surgical instruments, drugs, etc. This arrangement should prove beneficial.

North Wales Division of the N.V.M.A.

50th Anniversary Celebrations

To celebrate its 50th anniversary, the North Wales Division held a very successful dinner-dance at the Waterloo Hotel, Bettws-y-Coed, on Friday, January 26th, this "Golden Jubilee" function being attended by over 100 members, their ladies and guests. Before proceeding to the toasts of the evening, letters were read from the President, N.V.M.A. (Mr. S. F. J. Hodgman), and the President, R.C.V.S. (Professor T. Dalling), expressing their deep regret at not being able to be present on this auspicious and happy occasion, and wishing the Division well and its celebrations every success. In addition, the former nominated Dr. R. F. Montgomerie his deputy for the evening. The sentiments and good wishes of both were warmly received and appreciated.

It was in many ways a happy event that the President should have chosen as his deputy Dr. R. F. Montgomerie, for in proposing the toast of the "North Wales Division" he reminded us that this was the first Division of the "National" he had joined and that his membership had been of sufficiently long duration for him to come to know us all quite intimately. He felt very much at home again among us. Dr. Montgomerie spoke with the experience of a Past-President of the high regard in which the Division was held at Headquarters and of the value they attached to its several resolutions over the years. The President (Mr. W. Forgrave) and the Hon. Secretary, in replying, thanked Dr. Montgomerie for his remarks and for accepting the invitation to attend our celebrations under no easy circumstances, he having left hospital only a day or two before.

In the absence of Professor E. J. Roberts (Professor of Agriculture, University College of North Wales) who was indisposed, the toast to "The Veterinary Profession" was, at short notice, proposed by Humphrey Jones, Esq., former Principal and Founder of the School of Pharmacy, Liverpool, and now High Sheriff of Denbighshire. He could go back, he said, beyond the 50 years which we were celebrating when he was associated with a veterinary practitioner, and much amused us by quoting some of the prescriptions used in practice in the early 90s. The reply was left in the able hands of Professor R. E. Glover, Liverpool, a member of Council, R.C.V.S., who commented on what he thought was a very close association between the profession generally in North Wales and agriculture and the value of this to the farming community.

In lighter vein, Mr. H. M. Salusbury proposed the toast to "Our Guests" and the responses by Mr. E. G. E. Griffiths, Plas Newydd, a well-known Freisian breeder, and Dr. Ifor Jones, medical practitioner representing the North Wales Branch, B.M.A., were made memorable by their humour and the obvious sincerity of their appreciation of the invitation extended to them to attend as guests on this occasion. The last—"the toast of the evening" as it was termed by the proposer—that to "The Ladies," was made by Mr. D. T. Michael in a manner typical of the man. The recipient of this toast had left the response in the very able hands of Mr. W. O. Jones, who, in a very witty speech, thanked us for our high regard for them, our wives and daughters.

Photo: Stuart M. Archer, Bettws-y-Coed

L.-R.—Mr. W. B. Shaw, M.C. Dance; Mr. W. O. Jones, President Elect; Mr. Bowen, Senr., Vice-President; Mr. W. Forgrave, President; Mr. W. T. Rowlands, Hon. Secretary; Mr. R. L. Lewis, M.C. Dinner.

The dance that followed was indeed a worthy tribute to the organisers and proceeded without a dull moment amid gaiety and colour. During this feature we were provided with songs and recitations by Mr. and Mrs. Alun Ogwen Williams and many valuable prizes were distributed to successful competitors or spot dance winners. Festivities came to an end at 1 a.m. and to the strains of "Hen Wlad fy Nhadau" and "God Save the King" revellers dispersed on their homeward journey all feeling that they had spent a really wonderful evening.

The success of the celebrations was due to the untiring efforts of the small committee appointed—and in particular of its hard working secretary, Hywel R. Roberts—who through many disappointments and anxious moments had their efforts crowned with the success they deserved and to whom the thanks of the Division are due.

W. T. R.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

FOOT-AND-MOUTH DISEASE:

Yorks (W.R.).—Dean Mill Farm, Cawthorne, Barnsley (Feb. 12th).

SWINE FEVER:

Ayr.—Barleith Piggery, Hurlford (Feb. 16th).

Cheshire.—"Grasmere," Mill Lane, Hazell Grove (Feb. 15th).

Derby.—44, Old Coppice Side, Marlpool, Heanor (Feb. 12th); 125, High Street, Killamarch, Sheffield (Feb. 15th).

Durham.—Piggeries, Lascelles Park, Darlington (Feb. 14th).

Dumbarton.—Abattoir, Bankend Road, Dumbarton (Feb. 14th).

Lancs.—Gartside Farm, Greenside Lane, Droylesden (Feb. 16th).

Norfolk.—Links View, Holt Road, Cromer (Feb. 13th); Buckingham Palace Bungalow, Grove Avenue, New Costesset, Norwich (Feb. 16th).

Notts.—Ryton Dale, Bawtry Road, Blyth, Worksop (Feb. 12th); House Farm, Caythorp, Nottingham (Feb. 15th).

Suffolk (E.).—Abbey Farm, Gu'pher Road, Felixstowe (Feb. 13th).

Wilts.—Spiers Piece Farm, Steeple-Ashton, Trowbridge (Feb. 13th).

Yorks (E.R.).—Piggeries at Hardbattle's Field, Gage Lane, Driffield (Feb. 12th); Edmunds Farm, Fridaythorp, Malton (Feb. 13th); Paper's Yard, Walkergate, Beverley (Feb. 15th); British Railway Allotments, Marfleet, Hull, Yorks (Feb. 16th).

Yorks (W.R.).—Heuthwaite Farm, Walton Road, Wetherley (Feb. 14th); 11, Orchard Lane, Morrsends, Doncaster; 15, Queen Street, Thorne, Doncaster; 101, Highfield Crescent, Thorne, Doncaster; Manor Farm, Brinsworth, Rotherham (Feb. 15th); Port Jackson Farm, Camblesforth, Selby (Feb. 16th).

QUESTIONS IN PARLIAMENT

Fowl Pest

Mr. Coldrick (February 15th) asked the Minister of Agriculture what evidence he has to show that the spread of fowl pest in this country is due to the importation of infected poultry.

Mr. T. Williams: Although it has not been possible to determine with certainty the source of the present outbreaks of the sub-acute form of fowl pest, there is a possible connection with swill from an American camp. There is also evidence both direct and indirect which points to a good number of the outbreaks of the acute continental type over the past few years as having been connected with imported poultry. The following is the evidence for this:—

(i) When outbreaks of fowl pest occur, veterinary officers of the Ministry make enquiries about the source of infection. These enquiries have shown, in a considerable number of cases, a direct connection with imported poultry.

(ii) The distribution of primary outbreaks of fowl pest has coincided to a marked extent, both in time and place, with the distribution of carcases from countries where fowl pest is prevalent.

(iii) The virus of fowl pest has been recovered from the carcases of poultry imported from such countries.

(iv) There have been periods when this country has been free or almost free from the disease and its subsequent reappearance can only be attributed to the introduction of fresh infection from abroad.

Mr. Bossom asked the Minister of Agriculture if he will immediately stop the import of poultry from pest-infected countries, and continue this ban until this pest has been substantially eradicated.

Mr. T. Williams: I have at present nothing to add to the statement by my hon. Friend the Parliamentary Secretary in the debate on the Adjournment on February 9th. [*Vet. Rec.* **63**, 104-5.]

Mr. Dye asked the Minister of Agriculture how many separate outbreaks of fowl pest occurred in Great Britain for the last week for which records are available; and how these figures compare with the previous week.

Mr. T. Williams: There were 59 outbreaks of fowl pest in Great Britain during the week ended February 13th, 1951, compared with 50 outbreaks during the previous week.

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Pigs (Slaughter)

Lieut.-Colonel Lockwood (February 15th) asked the Minister of Food whether he is aware of the unnecessary suffering which is inflicted on animals, especially pigs, killed outside slaughterhouses on farms and on private property; and whether he will take the necessary steps to ensure that such animals are taken to slaughterhouses or killed on the premises with a humane killer by, or under the supervision of, a licensed slaughterer.

Mr. F. Willey: This was the subject of a debate in another place on November 16th, 1950, as a result of which I have arranged for a notice to be affixed to every application for a self supplier's licence to slaughter drawing attention to the desirability of ensuring that animals are slaughtered under humane conditions.

Following is a copy of the notice:—

"*Humane Slaughter of Animals*

"To ensure that the animal is humanely slaughtered, you should have it dealt with at a slaughterhouse and if this is not practicable employ a skilled slaughterman.

"Where a humane stunner is not available the local police will give you the address of the nearest Inspector of the R.S.P.C.A., or, in Scotland or Northern Ireland, the Scottish or Ulster S.P.C.A., respectively, from whom one may be obtained on loan."

* * * * *

Circuses (Importation)

Mr. Peter Freeman (February 15th) asked the Secretary of State for the Home Department whether he has considered a resolution from the Circus Proprietors of Great Britain, a copy of which has been sent to him, asking him to ban the importation of circuses from Germany into this country, and, in view of the inevitable suffering of wild animals in connection with circuses and the possibilities of danger to the public and staff, if he will take steps to prohibit such importation.

Mr. Ede: I have seen the resolution. Legislation would be needed to prohibit the importation of circuses and I can hold out no hope of introducing it.

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Dog Licences, Scotland

Sir W. Darling (February 13th) asked the Chancellor of the Exchequer if he will consider the retention by local authorities of moneys collected for dog licences.

Mr. Gaitskell: I presume the hon. Member is referring to local authorities in Scotland, where the dog licence duties are paid into the Exchequer. I will examine the hon. Member's suggestion in conjunction with my right hon. Friend the Secretary of State for Scotland.

Sir W. Darling: Will the right hon. Gentleman agree that, if local authorities collect this money, they should be entitled to keep it so that they may discharge such duties as they are required to carry out in connection with the cleaning of streets?

Mr. Gaitskell: There appears to be some anomaly there.

NOTES AND NEWS

Diary of Events

Feb. 27th.—Meeting of the Society of Women Veterinary Surgeons at the Royal Veterinary College, N.W.1, 6 p.m.

Mar. 1st.—Meeting of the Southern Counties Division, N.V.M.A., at Southampton.

Mar. 1st.—Annual General Meeting of the British Society of Animal Production, in the Lecture Room, Zoological Society of London, Regent's Park, 11.15 a.m.

Mar. 1st.—Meeting of the Central Division, N.V.M.A., at the Royal Veterinary College, Camden Town, N.W.1, 6 p.m.

Mar. 2nd.—Annual General Meeting of the Midland Counties Division, N.V.M.A., at Birmingham (Medical Institute, 154, Great Charles Street), 2.30 p.m.

Mar. 2nd.—Annual General Meeting of the South Wales Division, N.V.M.A., at Carmarthen (Dolwar Café), 2 p.m.

Mar. 7th.—Annual General Meeting of the Lancashire Division, N.V.M.A., at Manchester (Grand Hotel, Aytoun Street), 2.15 p.m.

Mar. 7th.—First General Meeting of the South-East Midlands V.M.A. at Northampton (Franklins Gardens Hotel), 2.30 p.m.

Mar. 8th.—Meeting of the East Midlands Division, N.V.M.A., at Sutton Bonington, 2.15 p.m.

Apr. 9th and 10th.—Annual Congress of the Laboratory Animals Bureau, in the University of Liverpool.

Sept. 23rd-29th.—Sixty-ninth Annual General Meeting and Congress of the National Veterinary Medical Association, at Eastbourne.

QUARTERLY MEETINGS OF COUNCIL AND STANDING COMMITTEES N.V.M.A. DURING 1951

The following dates are given for remaining meetings this year, chiefly to give members plenty of time to reserve hotel accommodation.

In London

Monday, April 16th:
2 p.m. Organising Committee
4 p.m Parliamentary and Public Relations Committee.

Tuesday, April 17th:
10 a.m. Veterinary State Medicine Committee.
12 noon Home Appointments Committee.
2.15 p.m. General Purposes and Finance Committee.

Wednesday, April 18th:
11 a.m. Council

In Edinburgh

Wednesday, July 11th:
11 a.m. Home Appointments Committee.
2 p.m Organising Committee.
4 p.m. Parliamentary and Public Relations Committee.

Thursday, July 12th:
11 a.m. Veterinary State Medicine Committee.
2 p.m. General Purposes and Finance Committee.

Friday, July 13th:
11 a.m. Council.

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Dishorning of Cattle

The Technical Development Committee of the Association has under review methods of dishorning cattle, and is particularly anxious to secure information on methods used in practice.

Dishorning by the Rubber Ligature Method

Information is required, particularly, on methods of dishorning using rubber bands or ligatures, with special reference to (*a*) technique used, (*b*) pain involved during the whole process of the removal of the horn, and (*c*) reliability in effecting removal of the horn, and length of time taken.

It would assist the Committee greatly if members would respond promptly to this appeal for information by writing on the subject to the General Secretary, N.V.M.A., 36, Gordon Square, London, W.C.1.

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PERSONAL

Sir Thomas Dalling

On the morning of Tuesday, February 13th, an Investiture was held in the State Ballroom at Buckingham Palace, when every form of learning and of service was honoured. Amongst the first of the long line to pass before the King was Sir Thomas Dalling, equally well known to the profession as President of the Royal College of Veterinary Surgeons and as Chief Veterinary Officer.

It was interesting to note that amongst the Gentlemen Ushers to His Majesty in charge of the proceedings was Colonel Codrington, whose department of the Foreign Office had so much to do with the arrangements for the Fourteenth International Veterinary Congress.

Supporting the President on this occasion was the Registrar.

. . . . .

Appointments.—Mr. John E. Lancaster, B.SC. (EDIN.), M.R.C.V.S., formerly Research Officer of the Ministry of Agriculture, left Weybridge at the end of last year to join the staff of the Animal Health Trust at its Poultry Research Station, Houghton, Hunts.

The appointment is announced of Mr. E. C. S. Dawe, M.R.C.V.S., Director of Veterinary Services, Bechuanaland Protectorate, as Deputy Director of Veterinary Services, Tanganyika. The Colonial Office also announces the following first appointments in the Colonial Veterinary Service: Mr. D. T. Graham, D.F.C., M.R.C.V.S., and Mr. W. W. Kirkby, M.R.C.V.S., as Veterinary Officers, Nigeria.

. . . . .

Forthcoming Marriage.—Plunkett—Kelly.—The marriage of Brigadier James J. Plunkett, son of the late Mr. Joseph Plunkett, Longford, Eire, and Rachel (*née* Bent), widow of Lieutenant-Colonel A. J. Kelly, R.A.V.C., will take place very quietly at St. Mary's Roman Catholic Church, Falmouth, on February 26th, 1951.

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R.C.V.S. OBITUARY

Evans, John, 17, Queen Victoria Road, Llanelly. Graduated N. Edinburgh, May 31st, 1899. Died February 12th, 1951.

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LEGAL NOTES

Terms of Judgment Dismissing Supplementary Veterinary Register Appeals*

In our issue of January 27th we recorded the dismissal, with costs in favour of the R.C.V.S., of the first appeals to be decided under the Veterinary Surgeons Act, 1948, which were heard on Tuesday, January 23rd last, by a Divisional Court of the King's Bench Division consisting of the Lord Chief Justice and Mr. Justice Devlin.

The four appellants were employees of the People's Dispensary for Sick Animals who had been working in Paris, Tangiers, Egypt and South Africa respectively. The Council, R.C.V.S., had refused registration on the grounds that the principal means of livelihood of the appellants had not been the necessary diagnosis and treatment laid down by the Act for the required time *in the United Kingdom.*

The appeals were based, amongst other matters, on the proposition that, as the appellants were under contracts of service to an organisation based in the United Kingdom, their work could in law be regarded as being within the United Kingdom for the purposes of the Act. Also the proposition was put forward that their work, as maintaining British prestige abroad, could be regarded as work of national importance allowing the Council, R.C.V.S., a discretion under the Act to register.

After hearing the appellants' case the judges indicated that it was not necessary for the R.C.V.S. to argue the case. The terms of the judgment were as follows:—

Judgment

Mr. Justice Devlin: This is an appeal by four gentlemen who desire to have their names inserted on the Supplementary Veterinary Register which is provided for by section 6 of the Veterinary Surgeons Act, 1948. That section reads: "The Registrar of the Royal College of Veterinary Surgeons shall keep a separate register, to be known as the Supplementary Veterinary Register, and any person who makes application in that behalf in accordance with the following provisions of this section shall be entitled, subject to the provisions of this section, to be registered in that Register if he satisfies the conditions specified in the next following subsection." Then in the next subsection the conditions are laid down: "(*a*) that he is of good personal character"—we are not troubled with that, but the material condition in each of these four cases is: "(*b*) that during the ten years immediately preceding the application he has for a period of not less than seven years in the aggregate been engaged in the United Kingdom as his principal means of livelihood in diagnosing diseases of animals and giving medical or surgical treatment to animals." Then there is a proviso, to which I shall refer later.

The Council has taken the view that none of these four applicants come within the conditions which are laid down in subsection 2 and that it is not open to the Council, having regard to the provisions of that subsection, to cause them to be registered under section 6. Accordingly the appellants have exercised their rights under subsection 5 of section 6, which says, "Where the Council refuse an application for registration under this section made within the time limited by or under the last foregoing subsection, they shall state the reason for the refusal and the applicant may in accordance with rules of court appeal to the High Court, and the High Court may confirm or reverse the decision of the Council." That, accordingly, is what we are now called upon to do.

The case of Mr. Quarrington, if I may take the facts relating to him first, are that he has been employed in the People's Dispensary for Sick Animals of the Poor since 1927, and it appears that ever since that time he has been engaged in diagnosing diseases of animals or giving surgical or medical treatment to animals. That has been his means of livelihood and he has held salaried posts, but unfortunately for him, although from 1927 until 1936 he did this work in England, in the latter years he was sent to Tangier and he has remained in Tangier ever since. Accordingly *prima facie* he has not for the ten years immediately preceding his application, which was made on July 29th, 1949, been engaged in the United Kingdom in diagnosing diseases of animals or giving medical or surgical treatment to animals. Mr. Harvey, on his behalf, has invited us to construe the word "engaged" as if it referred not only to engagements as a means of livelihood, but is also wide enough to cover the making of a contract of engagement, and his contract of engagement having been made in the United Kingdom it is said that he falls within the section.

It is a short point and not capable of any very great argument. It seems to me to be quite clear from the language of the section where it says "engaged in the United Kingdom as his principal means of livelihood" that refers, and refers only, to his place of work. Accordingly I think it is clear that the Council were right in taking the view that the case of Mr. Quarrington did not come within the section.

Mr. Bloom's case is substantially indistinguishable and I need not deal separately with that case.

In the case of Mr. Horne, he also joined the Society in 1927 and thereafter worked in this country until 1931, when he went to Paris. He remained in Paris until 1940; then, on the fall of Paris, he returned to this country, and he carried out his work for the Society in this country for a period of five years and eight months. Then, in 1946, at the beginning of that year, in January, he returned to Paris. Mr. Harvey has, of course, advanced the same argument on his behalf as in the other cases, but he has advanced also the additional argument that he comes within the terms of the proviso to subsection 2, which reads as follows: "Provided that the Council may authorise the registration of a person under this section who has been engaged as aforesaid during the said ten years, notwithstanding that he has been so engaged for less than seven years in the aggregate if the Council are satisfied that the time during which he was so engaged was reduced by reason of his serving in His Majesty's Forces or being engaged in

* Quarrington *v.* The Council of the Royal College of Veterinary Surgeons: Chitty *v.* Same. Horne *v.* Same. Bloom *v.* Same. Mr. C. P. Harvey, K.C., and Mr. Frank Gahan (instructed by Messrs. Moon, Gilks & Moon) appeared as Counsel for the Appellants. Mr. Ashe Lincoln, K.C., and Mr. Robert Fortune (instructed by Messrs. G. Thatcher & Son) appeared as Counsel for the Respondents.

work of national importance and that his registration would not be prejudicial to the public interest."

He worked in this country during the relevant period as aforesaid for five years and eight months, and if his work in Paris after January, 1946, could be regarded as work of national importance the two together might total up to seven years and so bring him within the terms of the proviso. The nature of his work is set out in paragraph 5 of his affidavit and he describes it as follows: "On January 26th, 1946, the Society sent me back to France in order to prevent further damage to the Society's property and to investigate the possibility of restarting the Society's work in France. I reopened the Society's Dispensary in Paris, but I found that the Society's animal sanatorium which had been opened in 1939 at Bievre had been so badly damaged that it has not been possible to reopen it. The Society has not yet been able to send anyone to relieve me and I am still in charge of the Society's work in Paris."

Of course, what is work of national importance is a question of fact, and it is plain from their determination, although they do not say so expressly, that the Council came to the conclusion that this was not work of national importance within the meaning of the subsection. Not only do I agree with that, but I do not think any other view could possibly be taken. The bare statement that this gentleman returned to do what was no doubt very good work, but work for the benefit of the animals of the poor of another nation, cannot, without more, conccivably be described as work of national importance. Accordingly I think that that appeal also fails.

In the case of Mr. Chitty the circumstances are again slightly different. He worked in this country until 1936, when he was sent to Cape Town, and in 1941 he returned to this country and for a year he worked in Manchester. Then in June, 1942, he served in the Army until September, 1946, when he was demobilised and went back to Cape Town again. His practice in this country during the relevant period in diagnosing diseases of animals was exactly one year, and if one adds to that his Army service it makes a total of just over five years.

Mr. Harvey has argued on his behalf that that is sufficient, because he says that if one gives a literal meaning to the proviso once it be established that there is service in His Majesty's Forces, the period of seven years is in effect dispensed with and the Council has a discretion, provided they find some period of practice and some period of service, however short either may be—provided they find those two things—they can admit to the Register without requiring the minimum of seven years. I do not think that the proviso can reasonably be construed in that way. If the proviso had been intended to do away with the minimum period of seven years which the subsection itself lays down, I am quite sure that the legislature would have said so in reasonably clear language. The fair construction of the proviso seems to me to be this, that in order to take advantage of it the applicant must be able to show that his period of practice in this country, taken together with the period of service or work of national importance, comes to a minimum of seven years. Mr. Chitty is not able, on the facts, to show that, and therefore his appeal must also be dismissed.

The Lord Chief Justice: I agree and have nothing to add.

Mr. Ashe Lincoln: Then, my Lords, I ask that each appeal should be dismissed with costs.

The Lord Chief Justice: Yes.

Mr. Ashe Lincoln: Your Lordships might like to know, before I leave the court, that these gentlemen can be licensed, under a section of this Act which has not been read, to carry on this work in their present employment.

The Lord Chief Justice: That may be.

Mr. Harvey: It gives them a very limited facility.

The Lord Chief Justice: I am afraid we have nothing to do with the policy of the Act, nor did the Council of the College of Veterinary Surgeons; they have to apply the Act.

Mr. Ashe Lincoln: Yes; if your Lordship pleases.

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VETERINARY SURGEONS ACTS

Another Successful Prosecution

The Royal College of Veterinary Surgeons has again been successful in another prosecution under the Veterinary Surgeons Act, 1948.

On February 15th, Mrs. L. L. Hamilton, at the Magistrates' Court, Uxbridge, pleaded guilty to three summonses of practising veterinary surgery although an unqualified person. Each of the summonses related to a visit which Mrs. Hamilton paid to a dog. The defendant was fined £2 2s. on each summons, making a total fine of £6 6s., and the bench awarded the R.C.V.S. £5 5s. costs against the defendant.

It is understood that further prosecutions by the R.C.V.S. are pending in various parts of the country.

STALLION LICENSING IN SCOTLAND

The Department of Agriculture for Scotland on January 13th issued the report on the result of operations under the Horse Breeding Acts, 1918 and 1948, in regard to the Licensing of Stallions during the period of 12 months from October, 1949, to September, 1950, inclusive, together with a summary showing the results of operations during the past ten years. The figures for 1950 are not comparable with those for previous years. Prior to 1949 licences required to be renewed annually. In the normal course, however, a licence granted since January 1st, 1949, remains in force, unless revoked, for the life of the stallion. Accordingly, in 1950 application required to be made only in respect of stallions which had come of age for licensing purposes.

The following statement gives the numbers of stallions of each breed in respect of which licences were granted and refused during the 12 months, and the reasons for refusal. There are also tables showing the numbers of stallions of various breeds licensed in Scotland during the past ten years, and the numbers rejected for various causes.

Stallion Licensing in 1950

Breed or Type	Applications received	Licences issued	Licences refused	Applications withdrawn
Clydesdale	32	31	*1	—
Arab	1	1	—	—
Hackney	4	1 (+1 Permit)	—	2
Highland	16	15	*1	—
Percheron	4	3	—	1
Shetland pony ...	11	11	—	—
Non-pedigree ...	6	5	—	1
Total	74	67 (+1 Permit)	2	4

* The one refusal among Clydesdales was on account of shivering, and the one refusal among Highland ponies on account of defective and inferior conformation and physique.

Numbers of Stallions Licensed from 1941 to 1950

Breed	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Clydesdale	362	367	364	314	318	307	235	194	*155	31
Arab ...	—	—	—	—	—	—	1	1	7	1
Dales Pony	—	—	—	—	—	—	—	—	—	—
Hackney	—	—	—	—	—	—	—	7	16	*2
Highland pony	20	21	19	16	20	22	17	24	27	15
Percheron	7	8	8	3	14	13	14	13	6	3
Polo pony	2	1	—	—	—	—	—	—	—	—
Shetland pony	2	5	7	2	—	2	1	14	18	11
Shire ...	—	—	—	—	—	—	—	—	—	—
Suffolk ...	—	—	—	1	1	1	1	1	—	—
Thoroughbred ...	2	5	8	5	3	3	3	2	3	—
Non-pedigree †	27	23	16	9	12	13	11	17	20	5
Totals	422	430	422	350	368	361	283	273	*252	*68

* Including one permit.

† Prior to 1930 non-pedigree stallions were included under breed categories.

Reasons for Refusal of Licences from 1941 to 1950

Defect	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Stringhalt	2	1	—	1	1	1	1	1	—	—
Shivering	1	2	1	1	—	1	—	—	—	1
Stringhalt, shivering and sidebone	—	—	—	—	—	—	—	—	1	—
Roaring or whistling	2	—	—	—	—	—	2	—	1	—
Sidebone	—	1	1	—	4	—	1	—	—	—
Ringbone	—	2	1	—	—	1	—	—	1	—

Bone spavin	—	1	—	—	—	1	1	—	—	—
Cataract	—	—	1	—	—	—	—	—	—	—
Defective genital organs	1	—	—	2	1	—	2	—	1	—
Navicular disease	—	—	—	—	—	—	—	—	—	—
Defective or inferior conformation or physique	—	—	1	1	1	—	1	—	4	1
Inadequately prolific	—	—	—	—	—	—	1	—	—	—
Totals	6	7	3	3	7	4	9	1	8	2
Percentage of refusals	1·4	1·4	1·4	1·3	1·8	1·0	3·1	0·36	2·96	2·7

Bull and Boar Licensing

The licensing of bulls in Scotland takes place under the Improvement of Live Stock (Licensing of Bulls) Act of 1931, and the licensing of boars takes place under that Act as amended by Section 6 of the Agriculture (Miscellaneous Provisions) Act of 1944. During the year 1950 7,396 bulls were licensed as compared with 8,236 in the preceding 12 months; whilst 1,678 boars were licensed as compared with 1,098 during the preceding 12 months. The number of bulls rejected was 372, and the number of boars 132 compared with 389 and 120 rejections respectively in 1949.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

CRYSTAL VIOLET SWINE FEVER VACCINE

Sir,—We are receiving many enquiries from members of the veterinary profession regarding supplies of swine fever vaccine from this laboratory. Letters were sent to veterinary surgeons in November of last year saying that only limited supplies were available, but that it was hoped further supplies would be ready in the near future. Fresh batches have been made, but the demand is heavy, and it may not be possible for some little time to meet all requirements immediately they are received.

The price of this vaccine has been fixed at 4s. for 10 c.c. (the smallest quantity issued); it will avoid misunderstandings if the vaccine is ordered in multiples of 10 c.c. and not in doses.

Yours faithfully,
A. W. Stableforth.

Ministry of Agriculture and Fisheries,
Veterinary Laboratory,
New Haw, Weybridge, Surrey.
February 13th, 1951.

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LEPTOSPIRA INFECTION IN PIGLETS

Sir,—I was very interested to read Messrs. Field & Sellers' clinical communication on leptospira infection in piglets (*Vet. Rec.* **63.** 78).

About three years ago, when I was attending a sow, the owner casually mentioned that he had a pet pig about four months old suffering from a "discoloration." He informed me that previously two other pet pigs were affected similarly and subsequently died. As far as I can remember, he stated that they lived about a fortnight in this condition.

Examination showed the pig to be suffering from jaundice. The whites of the eyes were particularly affected and the whole body was a bright yellow. The pig was on its feet and there was slight inappetence. I cannot remember the temperature recorded, but I believe it was normal. On account of the previous cases and in view of the high rat population on the farm—according to the owner—I hazarded the opinion that it might be leptospira infection. The pig was given 100,000 units of penicillin and two days later a similar dose. It made an uneventful recovery.

Some two months ago I attended a litter of pigs about a month old. Two of them had died and unfortunately had been disposed of. Five showed varying degrees of jaundice. Two of them were very dull and were hidden in the bedding; their temperatures were around 100°; of these two, one died. The rest made good recoveries after being treated with penicillin.

In the absence of a *post-mortem* examination it would be impossible, of course, to state definitely the causative agent responsible in these cases, but in view of the similarity of symptoms described by Field & Sellers and the response to penicillin, which is effective against *L. icterohaemorrhagiae*, it is more than likely that *L. icterohaemorrhagiae* was the organism involved.

Yours faithfully,
Arva, Co. Cavan, Ireland. P. N. Power.
February 8th, 1951.

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TUBERCULIN TESTING

Sir,—A short time ago I was called in to examine a three-year-old Lincoln Red bull over which there was a dispute. His most recent T.T. certificate was dated December, 1948, and he had passed. I diagnosed tuberculosis and subjected him to the comparative intradermal (single) test. The result was Avian 11, 19; Bovine 14, 23, which I think denotes a pass. I then had him destroyed, in agreement with the disputing parties, and made a *post-mortem* examination. I found advanced and long-standing tuberculosis of the pharyngeal, mediastinal and mesenteric lymphatics, of the lungs, pleura, pericardium, peritoneum, liver and spleen.

Yours faithfully,
6, South Brink, Wisbech. T. Knowles.
February 10th, 1951.

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NOMENCLATURE OF VETERINARY DISEASES

Sir,—Surely the attack launched in your columns (issue February 17th) by Mr. Tweedale Edwards on the old disease terms still in use is an example of misguided purism.

Of course these terms are old. They spring from the tongue that Shakespeare loved and Chaucer spoke. Their roots are in the language of our Anglo-Saxon yeoman forbears, spoken before the Normans came. Their use emphasises our ancient association with man's most ancient calling.

These terms have not persisted merely through ignorance, but because they have a definite descriptive value and a poetic quality of their own. Because, ringing as they do with the accents of our shires, many of us use them as part of the things we love. Because, being genuine English, they are understood by genuine Englishmen, whose knowledge of animal husbandry is not limited by the size of their scientific vocabularies.

I am as sure, as Mr. Edwards professes to be to the contrary, that no really cultured person would deprecate the use of these ancient terms. Culture implies broadminded knowledge and a wide education, whereas such an attitude smacks of the town-bred, synthetic, chromium-plated, cellophane-wrapped love of pseudo-scientific jargon which to-day frequently passes as genuine education.

We know the full meaning of these time-honoured terms, and so do our stock-owning countrymen. Their ancient usage does not imp'y that our knowledge is ancient. The farmer and his stockmen understand this; of what import, then, can be the sneers of the would-be intellectual snobs?

That great American Will Rogers once replied, on being asked to dine, "No thanks, I've just ett." On being told he should have said "have eaten," he characteristically remarked: "Yes, but I know a lot of folk who say 'have eaten' who ain't ett."

Yours faithfully,
Penbury End, Penn, Bucks. B. S. Hanson.
February 9th, 1951.

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EQUINE CASTRATION

Sir,—The following verse may be of interest to Professors Formston and Forsyth, Colonel Body and Dr. Gunning:—

"Thy colts for thy saddle ge'd yoong to be light,
for cart do not so if thou judgest aright.
Nor geld not but when they be lustie and fat:
for there is a point to be learned in that."

Thomas Tusser, 1523-80: "Points of Good Husbandry."

Daniel Hillman ("Tusser Redivivus", 1710) comments on the above:—

"This agrees with our present Practice: The best way of gelding Colts is with an actual Cautery."

Yours faithfully,
The Green, Aldbourne, A. C. Fraser.
Marlborough, Wilts.
February 17th, 1951.